IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Robert J. McMillan, et al.	§	Attorney Docket No.: 47,414
U.S. Patent No. 6,064,970	§	
Formerly Application No. 09/135,034	§	Customer No.: 28120
Issue Date: May 16, 2000	§	
Filing Date: August 17, 1998	§	Requester: Liberty Mutual Insurance Co.
Former Group Art unit: 2761	§	
Former Examiner: Edward R. Cosimano	§	

For: MOTOR VEHICLE MONITORING SYSTEM FOR DETERMINING A COST OF INSURANCE

MAIL STOP *EX PARTE* REEXAM
Central Reexamination Unit
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REQUEST FOR *EX PARTE* REEXAMINATION OF U.S. PATENT NO. 6,064,970 PURSUANT TO 35 U.S.C. § 302, 37 C.F.R. § 1.510

Dear Sir:

Pursuant to the provisions of 35 U.S.C. § 302 and 37 C.F.R. § 1.510, the undersigned, on behalf of Liberty Mutual Insurance Company ("the Requester") hereby requests *ex parte* reexamination of claims 1-15 (all of the claims) of United States Patent No. 6,064,970 ("the '970 patent"), which issued to Progressive Casualty Insurance Company on May 16, 2000, with Robert J. McMillan as the first named inventor. A complete copy of the '970 patent is attached as Exhibit A, and a copy of the prosecution history for the '970 patent (other than the prior art of record) is attached as Exhibit B. As detailed below, the Requester hereby asserts that a substantial new question of patentability exists as to all of the claims of the '970 patent based on five prior art references that were not previously before the Patent Office, and one reference

that was.[1] The Requester also cites two other references that the Applicants conceded, during prosecution, were prior art. The Requester further asserts that all of the claims are invalid in view of these references.

The '970 patent is also at issue in *Progressive Casualty Insurance Company v. Safeco Insurance Company of Illinois, et al.*, Case No. 1:10-cv-01370-PAG, in the U.S. District Court for the Northern District of Ohio, Eastern Division (filed June 18, 2010). In the context of the present Request, the standard provided in MPEP § 2111 (Claim Interpretation; Broadest Reasonable Interpretation) for claim interpretation during patent examination is applied. Because the courts apply a different standard during litigation, *see In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364, 1369 (Fed. Cir. 2004), the Requester expressly reserves the right to argue a different claim construction in the pending litigation.

[1] The '970 patent issued on August 18, 1998, approximately 19 months before the USPTO implemented "second-pair-of-eyes" review for business method patents in Class 705, to which the '970 patent is assigned. *See, e.g.,* http://www.uspto.gov/web/offices/com/strat21/action/q3p17a.htm.

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Exhibit I: U.S. Patent No. 5,797,134 File History

I. BACKGROUND TO THE REQUEST

The '970 patent is nothing more than an attempt to claim ideas that had long been known in the art – monitoring and recording vehicle data for insurance rating purposes. Independent claims 1, 2 and 4-6, and dependent claim 3, require three main elements: (1) "monitoring" or "extracting" data representative of vehicle or driver behavior (*e.g.*, time and location) during a selected period of time; (2) "recording" the data in, *e.g.*, a database; and (3) "determining" a cost of insurance for the selected time period. Dependent claims 7-15 recite a more detailed method for monitoring vehicle and driver behavior and adjusting insurance costs based on safety and actuarial standard values.

These claimed principles were not invented by the Applicants. This is confirmed, in part, by the Background of the Invention section of the '970 patent and statements made by the Applicants during prosecution. In fact, by the Applicants' own admissions, it was *well known* to monitor and record data collected from a vehicle and to use that data to assess insurance costs.

First, the '970 patent makes plain that "conventional insurance" schemes that used actuarial classes to rate insurance costs were known. Ex. A at Col. 1:16-2:37. Second, the Applicants acknowledged the following methods and systems as commonplace:

- Vehicle operating data recording systems that "disclose a variety of conventional techniques for recording vehicle operation data elements in a variety of data recording systems" (*id.* at Col. 2:54-61);
- Vehicle tracking systems "with navigation systems for providing information describing a vehicle's location based upon navigation signals. When such positioning information is combined with roadmaps in an expert system, vehicle location is ascertainable" (*id.* at Col. 3: 28-34);
- Using radio communication links and cellular phones to "provide immediate communication of certain types of data elements or to allow a more immediate response in cases of theft, accident, break-down or emergency" (*id.* at Col. 1: 61-66); and

- Detection and recording of vehicle usage data, *e.g.*, seatbelt usage, to assess vehicle insurance costs (*id.* at Col. 1:66-2:2).

Third, the '970 patent recognizes that "[c]urrent motor vehicle control and operating systems comprise electronic systems readily adaptable for modification to obtain the desired types of information relevant to determination of the cost of insurance." *Id.* at Col. 3:25-28.

Indeed, during prosecution of the '970 patent, the Applicants stated that the prior art of record was "useful for teaching a ***collection of operational data about a vehicle***" and "that this ***stored data can be acquired by automobile insurance companies for 'appropriately allocating higher costs only among the highest risk drivers***' [or to allow] ***'insurance companies to evaluate the driving habits of vehicle operators***.'" Ex. B, Amend. D at 5 (emphasis added).

Faced with the breadth of the prior art teaching the use of vehicle data for insurance rating, the Applicants were forced to limit their "invention" based on ***which*** insurance period to apply cost adjustments, premium adjustments, and ratings, *i.e.*, for application to the monitored time period**.** Particularly, the Applicants argued that the "important and consequential advantage of the subject invention [is] ***determining insurance costs for a certain period based upon how the vehicle is operated during that very same time period***." *Id.* at 5-6 (emphasis added). The Applicants further assured the PTO that "the instant invention is directed to a system which ***adjusts the insurance premium for the current insurance period and not a future insurance period as in the applied prior art***." Ex. B, Interview Summary (emphasis added). As such, the Applicants made clear during prosecution that the "invention" as a whole is limited to using vehicle data for determining insurance cost adjustments, premium adjustments, and ratings

to apply to the corresponding monitored period of vehicle operation. This is further confirmed by the issued claim language, as illustrated in claim 1 of the '970 patent[2]:

> ". . . ***monitoring a plurality of the data elements*** representative of an operating state of a vehicle or an action of the operator ***during a selected time period***; and recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to ***determining a cost of insurance for the vehicle during the selected time period***."

But, contrary to the Applicants' representations to the Examiner, at least three separate prior art references (one that was before the original Examiner and two newly-located references) *did* disclose this purported "novel" concept of insurance rating for the monitored time period. In fact, using vehicle data to rate insurance retrospectively was known ***80 years ago***.

The Dorweiler reference, published in 1930, discloses a method for determining "premium bases" using data from "devices" to assess exposure retrospectively, *i.e.*, collecting data during one period that affects an insurance rate during the same monitored period. Ex. F at 339. The article states that when hazard media such as "mileage, car-hour, or fuel-consumption exposure" are used in "***rate making***," they would "***require a final adjustment which would be determined retrospectively***" for the period monitored. *Id.* at 339 (emphasis added).

The Kosaka reference, published in 1992, discloses a risk evaluation device "for evaluating risk in moving bodies (vehicles) or insurance customers," and to an "insurance premium determination device that employs this ***risk evaluation device***." Ex. C at 2 (emphasis added). The information gathered and evaluated by these devices is then used to determine a "real time" insurance premium. *Id.* at 4, 7.

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[2] Each independent claim of the '970 patent has language that refers to monitoring driver behavior during a specific time period and determining an insurance rate for that time period. Ex. A at Col. 11:41-12:40.

And the Pettersen reference, published in 1990, taught that vehicle data related to the "driving pattern of a motor vehicle" may be used to provide a "***bonus***" to persons with measured safe driving characteristics, and in particular, a "***more fair bonus arrangement***, i.e., that policy holders having a 'careful' driving pattern – low speeds and low accelerations – may be allotted a higher bonus." Ex. H at 3 (emphasis added). One of ordinary skill at the time would naturally have understood Pettersen's disclosure of this "bonus" in its ordinary sense to include at least a possible reward for performance in the monitored period, and would thus have recognized Pettersen to be disclosing an insurance scheme where the policyholder receives such a "bonus" or rebate for good driver behavior during the measured time period against the premium for that period. *Id.*

As explained below in Section III, each of these three references not only demonstrates the existence of rating for the monitored time period – the Applicants' claimed distinction for patentability – in the prior art, but also renders claims 1-15 invalid, as either anticipated (Kosaka) or obvious in combination with other cited prior art references (including three newly-cited references not before the examiner during original prosecution and admissions by the Applicants). For example, Lemelson teaches monitoring how a vehicle is being driven to create an evaluation code that can warn the driver or a remote location about unsafe driving while Dorweiler teaches how to use this exposure media to change premium rates retrospectively. In addition, Bouchard and Pettersen teach complementary systems of monitoring vehicle sensors to determine whether the driver is operating safely, which, as Pettersen discloses, can be used to give insurance bonuses to drivers who drove carefully during the monitored period, thus reducing the premium paid for that monitored period. Finally, Kosaka discloses a fuzzy logic system that uses data about the operation of a motor vehicle to

evaluate risk. Based on the level of risk, Kosaka discloses changing insurance premiums in real time or triggering an alarm signal. Combining Kosaka with Black Magic yields a location-aware real-time insurance pricing system. Kosaka, standing alone, and each of these combinations raise substantial new issues of patentability.

II. SUBSTANTIAL NEW QUESTIONS OF PATENTABILITY

Section II.A, below, provides a list of all prior art references relied upon in the present request – including references not previously cited to or considered by the Patent Office – disclosing the features the Applicants argued were missing from the prior art considered during the original prosecution. Section II.B explains how each of the references raises a substantial new question of patentability that is different from those raised in the previous examination of the patent before the Office. As part of this discussion, Section II.B(1) provides an overview of the subject matter and prosecution history of the '970 patent, including an overview of the features the Applicants argued were missing from the prior art considered during the original prosecution. Section II.B(2) explains how the features emphasized by the Applicants during prosecution to obtain the '970 patent were well known in the art, and in particular are shown by the references and combinations of references that form the basis for Requester's substantial new questions of patentability. Section II.C explains why the obviousness of all the claims of the '970 patent cannot be overcome by secondary considerations.

A. Listing Of Prior Art Patents And Printed Publications

Reexamination of claims 1-15 (all of the issued claims) of the '970 patent is requested in view of the following references:

Exhibit C: Japanese Patent Publication No. JP-A-4/182868, filed on November 19, 1990 and published on June 30, 1992, to Kosaka ("Kosaka") and Certified English-Language Translation.

Exhibit D: "An Interest in Black Magic – Motor Technology" published on January 1, 1994 in *Insurance Age* magazine ("Black Magic").

Exhibit E: U.S. Patent No. 5,570,087, filed on February 18, 1994 and issued on October 29, 1996, to Lemelson ("Lemelson").

Exhibit F: "Notes on Exposure and Premium Bases" by P. Dorweiler, on page 319 of a book published in 1930 by the Casualty Actuarial Society entitled "Proceedings of the Casualty Actuarial Society" ("Dorweiler").

Exhibit G: U.S. Patent No. 5,465,079, filed on August 13, 1993 and issued on November 7, 1995, to Bouchard *et al.* ("Bouchard").

Exhibit H: WO 90/02388, filed on August 8, 1989 and published on March 8, 1990, to Pettersen ("Pettersen").

B. Statement Setting Forth Each Substantial New Question of Patentability

Other than Pettersen, none of the above-listed references were cited by the Applicants or the Examiner or otherwise utilized during the prosecution of the application that issued as the '970 patent. As detailed below in this section, each of these new references is more relevant than the art that was utilized during the prosecution of the '970 patent. With regard to Pettersen, although it was made of record during the '970 patent's prosecution, Pettersen was not cited or discussed during examination to reject the claims. As discussed below, Pettersen is being presented in this Request in a new light and in combination with references that were not cited or otherwise utilized during reexamination. In addition, statements the Applicants made during prosecution of the '970 patent application ("Admitted Prior Art") are also used in this Request in combination with the newly-cited references that contain disclosures more pertinent than those before the Examiner during the original examination. Thus, the questions of patentability raised in this request were not raised during prosecution of the application that led to the '970 patent.

The following combinations of references raise new issues of patentability that were not considered during prosecution of the '970 patent:

1. A substantial new question is raised as to the patentability of claims 4-8, 10, and 13 by Kosaka.

2. A substantial new question is raised as to the patentability of claims 1-3, 11-12, and 14-15 by Kosaka in view of Black Magic.

3. A substantial new question is raised as to the patentability of claim 9 by Kosaka in view of the Admitted Prior Art.

4. A substantial new question is raised as to the patentability of claims 1-8 and 10-15 by Lemelson in view of Dorweiler.

5. A substantial new question is raised as to the patentability of claim 9 by Lemelson in view of Dorweiler and the Admitted Prior Art.

6. A substantial new question is raised as to the patentability of claims 1-8 and 10-15 by Bouchard in view of Pettersen.

7. A substantial new question is raised as to the patentability of claim 9 by Bouchard in view of Pettersen and the Admitted Prior Art.

1. Background and Prosecution of the '970 Patent

(a) The '970 Patent

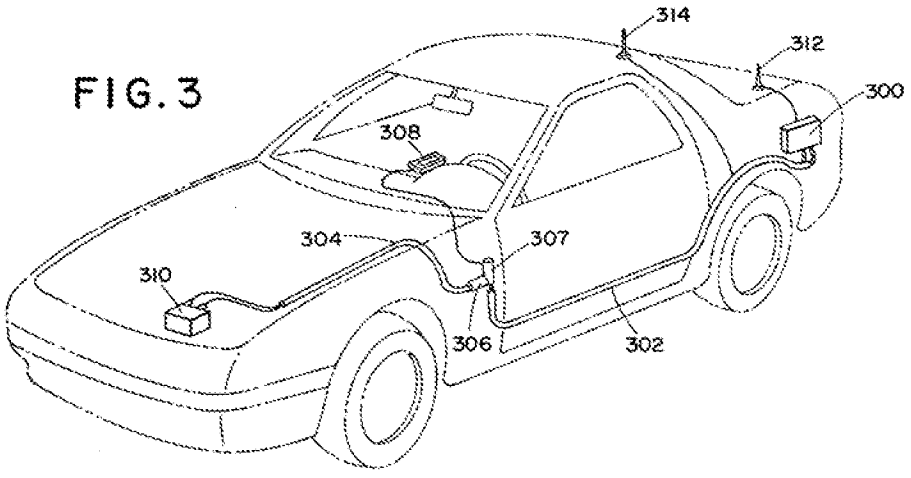
The '970 patent states it is directed to "a method and system of determining a cost of automobile insurance based on monitoring, recording and communicating data representative of operator and vehicle driving characteristics." Ex. A at Abstract. The majority of the written description of the '970 patent relates to well-known insurance schemes and vehicle monitoring technology. For example, the '970 patent describes "conventional insurance" schemes that use actuarial classes and assess underwriting costs. *Id.* at Col. 1:28-2:37.

In addition, according to the Background of the Invention, the following concepts were recognized in the prior art:

- Vehicle operating data recording systems that "disclose a variety of conventional techniques for recording vehicle operation data elements in a variety of data recording systems" (*id.* at Col. 2:54-61);
- Vehicle tracking systems "with navigation systems for providing information describing a vehicle's location based upon navigation signals. When such positioning information is combined with roadmaps in an expert system, vehicle location is ascertainable" (*id.* at Col. 3:28-34);
- Using radio communication links and cellular phones to "provide immediate communication of certain types of data elements or to allow a more immediate response in cases of theft, accident, break-down or emergency" (*id.* at Col. 2:61-66); and
- Utilizing seatbelt use to assess vehicle insurance costs (*id.* at Col. 2:66-3:2).

Consequently, the '970 patent recognizes that "current motor vehicle control and operating systems comprise electronic systems readily adaptable for modification to obtain the desired types of information relevant to determination of the cost of insurance." *Id.* at Col. 3: 25-28. Indeed, Figure 3 (depicted below) discloses a motor vehicle with well-known components for "implementing the subject invention" (Col. 5:44-46) – *e.g.*, on-board computer (**300**), vehicle data bus (**304**), vehicle sensors (**306**), driver input device (**308**), car battery (**310**), GPS antenna (**312**), and communication link (**314**).

FIG. 3



The claims of the '970 patent are thus a combination of elements that were known in the prior art. Specifically, independent claims 1, 2, 4-5 and dependent claim 3 of the '970 patent generally require three elements: (1) monitoring data elements representative of vehicle behavior (*e.g.*, time and location) during a selected period of time; (2) recording the data elements in, *e.g.*, a database; and (3) determining a cost of insurance for the selected time period. Independent claim 6 requires a specific type of vehicle monitoring, *i.e.*: (1) extracting data elements during a data collection period; (2) analyzing, grouping and storing the data elements; and (3) generating an output data value to compute an insurance rating for the data collection period.

Dependent claims 7-15, generally recite a more detailed method for monitoring a vehicle for insurance and adjusting insurance costs based on safety and actuarial standard values. These claims require one or more of the following: (1) determining a trigger event and storing/transmitting a signal related to said trigger event (claims 7-8); (2) additionally using an output data value for computing an insurance rating for a future data collection period (claim 9); (3) comparing data elements (*e.g.*, location and time) to preset values (safety/actuarial standards) to create an adjusted insurance cost output (claims 10-11); (4) using adjusted cost for a prospective or retrospective basis (claim 12); and (5) generating an adjusted underwriting cost (claims 13-14), including for a prospective or retrospective basis (claim 15).

(b) The '970 Prosecution History

The application that resulted in the '970 patent (No. 09/135,034) was filed on August 17, 1998. The application claims priority to U.S. Application No. 08/592,958, which was filed on January 1996 and issued as U.S. Patent No. 5,797,134 on August 18, 1998. A copy of the '970 patent prosecution history is attached as Exhibit B, excluding the prior art of record.

The same day the application for the '970 patent was filed (August 17, 1998), originally-filed claims 1-27 were canceled and claims 28-34 were added by Preliminary Amendment A. Newly-added independent claim 28[3] of the application read as follows:

> 28 (21, 1). A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising:
>
> monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,
>
> recording selected ones of the plurality of the data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period, said ones including a time and location of vehicle operating and a corresponding log of vehicle speed for the time and location.

Later, on December 23, 1998, Preliminary Amendment B added claims 35-47. Newly-added independent claim 35 read as follows:

> 35 (28, 6). A method of monitoring a human controlled power source driving vehicle, the method comprising:
>
> extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;
>
> analyzing, grouping, and storing the one or more elements as group data values in a first memory related to a predetermined group of elements; and,
>
> correlating the group data values to preset values in a second memory and generating an output data value based on the correlation.

In the First Office Action the Examiner rejected all of the pending claims (21-40).[4] Claims 21-24, 28, 29, 33 and 34 were rejected under 35 U.S.C. 102(b) as being "clearly anticipated by Camhi et al (5,430,432) or Ousbourne (5,499,182)" because each disclosed:

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[3] The originally filed application had 20 claims, not 27. As a result, in the First Office Action and in accordance with 37 CFR 1.126, the examiner renumbered claims 28-34 as claims 21-27 and claims 35-47 as claims 28-40.

> "[a] system which collect operational data about a vehicle. The data is then analyzed to determine if a trigger event of some type has occurred. When a trigger event has occurred, then the monitored operational data is stored in a different storage unit for further analysis." Ex. B, OA 1 at 5.

The Applicants did not dispute the Examiner's statements regarding the Camhi and Ousborne references. In fact, the Applicants admitted in their response to the First Office Action that both references teach: (1) collecting vehicle driver data and (2) providing that data to insurance companies for assessing insurance rates. Ex. B, Amend. D at 5. Specifically, the Applicants stated that both references are:

> "useful for teaching the collection of operational data about a vehicle and which information is selectively stored, [and] that this stored data can be acquired by automobile insurance companies for 'appropriately allocating higher costs only among the highest risk drivers.', Osborne [sic] '182, Col. 2, lines 26-34; or, to allow 'insurance companies to evaluate the driving habits of vehicle operators.', Camhi et al. '432, at Col. 1, lines 63-65." *Id.*

The Applicants instead distinguished their "invention" from Camhi and Ousbourne on ***one*** ground – asserting that the references merely teach rating for a future period based on past driving activity, *i.e.*, "a more sophisticated scheme of collecting historical information in a conventional insurance scheme by generating a ***prospective rate*** based upon then known operating results and parameters of the vehicle operator." *Id.* According to the Applicants, the "important and consequential advantage of the subject invention [is] determining insurance costs for a certain period based upon how the vehicle is operated ***during that very same time period***." *Id.* at 5-6 (emphasis added). In particular, the Applicants made the following representations to the Examiner:

> "Claim 21 correlates the monitoring and recording of data elements relative to a common selected time period as opposed to the collection of data into a historical collection and then utilizing the historical collection to suggest a future cost of

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[4] The Examiner also objected to the application on several grounds, including for impermissibly adding new matter, nonstatutory double patenting, indefiniteness, and for failure meet the written description requirement. Ex. B, Office Action of Mar. 18, 1999 ("OA 1") at 3-4.

> insurance based on the mere historical collection of data. ***Rather, the subject invention determines the cost of insurance for a certain time period based upon the data elements collected during that same time period***." *Id.* at 6 (emphasis added).
>
> "The important novelty for the subject invention is retained in these claims by utilizing the output value for the data collection period to be determined by the data collected in that same period. Thus, the important and consequential advantage of the subject invention, of ***determining insurance costs for a certain period based upon how the vehicle is operated during that very same period***, is defined in the claims and thus patentably distinguishes the invention from the teachings of the references." *Id.* (emphasis added).[5]

Thus, in order to obtain allowance of the '970 patent claims, the Applicants clearly limited their "invention" to merely determining insurance cost adjustments, premium adjustments, and ratings for application to the monitored time period and disclaimed determining prospective cost adjustments, premium adjustments and ratings for application to a future time period.

The Examiner maintained his rejections in the Second Office Action. The Examiner was not persuaded by the Applicants' arguments,[6] and he further characterized Camhi and Ousbourne as references that "record data which is to be used by an insurance company for the purpose of determining the cost of insurance based on driver habits." Ex. B, OA 2 at 3.

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[5] Notably, Applicants made the same argument regarding determining insurance costs for the data collection period when seeking allowance of the claims filed in the application that led to U.S. Patent No. 5,797,134 (the parent application of the '970 patent). According to the January 27, 1998 Interview Summary, the Applicants (represented by the same attorney who prosecuted the '970 patent) "discussed [the] feature of collecting data in real time for a determination of premium for the period during which data is collected." Exh. B, Interview Summary at 1. The Applicants "assert[ed] that the prior art determines cost payment based on past driving habits for a future period," *id.* and agreed to amend their claims to reflect these purported distinguishing characteristics over the prior art. On January 30, 1998, the Applicants did just that by adding language to each independent claim requiring that "monitoring" and "extracting" of data be performed during a particular time period (*i.e.*, "selected time period", "time period", "insurance period of time") and providing a "cost of insurance" for the respective time period. Exh. I, Amend. C at 2-7. In the Remarks section, the Applicants made clear that their amendments "clarif[ied] that the invention involves ***adjusting a cost of insurance by collecting data in a time period and using that data to compute a more reliable and accurate cost of insurance for the same time period***." *Id.* at 8 (emphasis added).

[6] The Examiner found the Applicants' arguments unpersuasive because they were premised, in part, on the reasons for allowance for claims of the parent application that were narrower than the claims of the instant application. Ex. B, Office Action of Aug. 13, 1999 ("OA 2") at 3.

On November 12, 1999, the Examiner, Inventor Robert McMillan and the Applicants' attorney participated in a teleconference to discuss the '970 patent application. According to the Interview Summary, the Applicants attempted again to convince the Examiner that their claims were novel because they taught adjusting insurance premiums for the current monitored period and not a future period. *See* Ex. B, Interview Summary. Specifically, the Applicants' counsel

> "argued that the instant invention is directed to a system which ***adjusts the insurance premium for the current insurance period and not a future insurance period as in the applied prior art***." *Id.* (emphasis added).

As a result, the Examiner agreed to allow claims 21, 24 and 26. *Id.* The Examiner also agreed to allow claims 22 and 28 if they were amended to reflect the "current insurance premium period" limitations.[7] *Id.*

Subsequently, on November 15, 1999, the Applicants amended claims 22 and 28 as follows:

> 22 (2). A database comprising data elements representative of operator or vehicle driving characteristics for a selected time period including a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location, **the database then being used to determine an insurance charge for the vehicle operation for said selected time period**. (emphasis in original).
>
> 28 (6). A method of monitoring a human controlled power source driving vehicle, the method comprising:
>
> extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;
>
> analyzing, grouping, and storing the one or more elements as group data values in a first memory related to a predetermined group of elements; and,
>
> correlating the group data values to preset values in a second memory and generating an output data value based on the correlation **wherein the output data**

[7] Filed claims 21, 22, 24, 26 and 28 issued as claims 1, 2, 4, 5 and 6, respectively.

> **value is used to compute an insurance rating for the vehicle FOR the data collection period**. (emphasis in original).

In the Remarks section of the Amendment, the Applicants stated that the amendments of claims 22 and 28 addressed the concerns of the Examiner, *i.e.*, that "he failed to see in claims 22, 28 a correlation between the data collection mentioned in these claims and the particular period of insurance charge for which the data is used are the ***same*** periods."[8] Ex. B, Amend. E at 2 (emphasis added).

The Examiner then issued a Notice of Allowability allowing claims 21-24, 26, 28-34, 37, 38 and 41. Ex. B, Notice of Allowability. Each of the issued independent claims includes at least one limitation that requires monitoring the vehicle for a time period and determining the insurance cost for that same time period:

> Claim 1: ". . . ***monitoring a plurality of the data elements*** representative of an operating state of a vehicle or an action of the operator ***during a selected time period***; and recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to ***determining a cost of insurance for the vehicle during the selected time period*** . . . ."
>
> Claim 2: " A database comprising data elements representative of operator or ***vehicle driving characteristics for a selected time period*** . . . the database then being used ***to determine an insurance charge for the vehicle operation for said selected time period***."
>
> Claim 4: ". . . ***monitoring operator driving characteristics during the selected period***; and ***deciding a cost of vehicle insurance for the period*** based upon the operating characteristics monitored in that period."
>
> Claim 5: ". . . monitoring a plurality of data elements representative of an ***operating state of a vehicle or an action of the operator during the selected period; . . . producing a final cost of vehicle insurance for the selected period*** from the base cost and the surcharge or discount."

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[8] The Applicants also added new claim 41 (issued dependent claim 9): "The method as defined in claim 28 [6] wherein the output data value is ***additionally*** used for computing an insurance rating for the vehicle for a future collection period." (emphasis added).

> Claim 6: ". . . extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one ***operating state of the vehicle and the at least one human's actions during a data collection period***; . . . wherein the output data value is ***used to compute an insurance rating for the vehicle for the data collection period***." Ex. A at Col. 11:40-12:40.

2. The Specific Features the Applicants Emphasized During Prosecution to Obtain Allowance of the '970 Patent Existed Long Before Any Claimed Priority Date for the '970 Patent, As Shown By the New Technical Teachings of the Cited References, Which Thus Raise Substantial New Questions of Patentability

During the prosecution of '970 patent, as describe above, the Applicants wanted the Patent Office to believe there were no systems or methods available to "***determin[e] insurance costs for a certain period based upon how the vehicle is operated during that very same time period***." Ex. B, Amend. D at 5-6 (emphasis added). In fact, this was the single supposedly inventive element of all of the independent claims.

In truth, however, long before the application for the '970 was filed, several systems and methods were known that taught insurance rating for the monitored time period. These references, which provide the teaching the Applicants argued was missing during original prosecution, thus raise substantial *new* questions of patentability that were not considered by the original Examiner.

In fact, roughly ***70 years before*** any claimed priority date for the '970 patent, **Dorweiler** taught a method for determining "premium bases" using data from "devices" to assess exposure retrospectively, *i.e.*, collecting data during one period that affects an insurance rate during the same period. Ex. F at 339. The article states that when hazard media such as "mileage, car-hour, or fuel-consumption exposure" are used in "***rate making***," they would "***require a final adjustment which would be determined retrospectively***" for the period monitored. *Id.* at 339 (emphasis added).

Likewise, in the late 1980s, the **Pettersen** reference described that vehicle data related to the "driving pattern of a motor vehicle" may be used to provide a "***bonus***" to persons with measured safe driving characteristics, specifically, a "***more fair bonus arrangement***, i.e., that policy holders having a 'careful' driving pattern – low speeds and low accelerations – may be allotted a higher bonus." Ex. H at 3 (emphasis added). One of ordinary skill at the time would naturally have understood Pettersen's disclosure of this "bonus" in its ordinary sense to include at least a possible reward for performance in the monitored period, and would thus have recognized Pettersen to be disclosing an insurance scheme where the policyholder receives such a "bonus" or rebate for good driver behavior during the measured time period against the premium for that period. *Id.*

Finally, in the early 1990s, the **Kosaka** reference disclosed a risk evaluation device "for evaluating risk in moving bodies (vehicles) or insurance customers," and an "insurance premium determination device that employs this ***risk evaluation device***." Ex. C at 2 (emphasis added). The information gathered and evaluated by these devices is then used to determine a "real time" insurance premium. *Id.* at 4, 7.

The Dorweiler, Kosaka and Pettersen references all demonstrate that it was well known to perform insurance rating for the monitored time period – long before the application for the '970 patent or the parent application was filed. Thus, each of these references discloses what the Applicants argued was missing from the prior art during the original examination leading to the '970 patent. Each of the seven substantial new questions of patentability raised by the Requester relies on these new teachings of one of these three references, which are at least for this reason more pertinent than the prior art previously considered and were not previously

before the Examiner (Kosaka, Dorweiler) or were not considered in this new light by the Examiner (Petterson) during the original prosecution of the '970 patent.

C. Secondary Considerations and Obviousness Under 35 U.S.C. § 103

As demonstrated in this Request, many claims of the '970 patent are anticipated by Kosaka, and "secondary considerations" are irrelevant to the invalidity of these claims under 35 U.S.C. § 102.

This Request also demonstrates that *all* of the claims of the '970 patent are obvious under 35 U.S.C. § 103 based on the combinations of references presented here. As discussed below, these overwhelming and old teachings in the prior art of ***the same insurance policy feature that the Applicants argued was their basis for patentability*** – "determining insurance costs for a certain period based upon how the vehicle is operated *during that very same period*" – cannot be overcome by "secondary considerations."

The "ultimate determination of whether an invention is obvious is a legal question based on the totality of the evidence." *See Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1131, 56 U.S.P.Q.2d 1456, 1464 (Fed. Cir. 2000) (*citing Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1483, 44 U.S.P.Q.2d 1181, 1187 (Fed. Cir. 1997)). As set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), those fact determinations involve (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of ordinary skill in the pertinent art, and (4) additional evidence, which may serve as indicia of non-obviousness. This "additional evidence" with respect to obviousness may include "secondary considerations [such] as commercial success, long felt but unsolved needs, [and] failure of others." *Graham*, 383 U.S. at 17, 148 U.S.P.Q. at 467. ***However, a lack of invention cannot be outweighed by secondary factors***.

Dow Chem. Co. v. Halliburton Oil Well Cementing Co., 324 U.S. 320, 64 U.S.P.Q. 412 (1945). *See also Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 153, 87 U.S.P.Q. 303, 306 (1950) ("[C]ommercial success without invention will not make patentability."); *Brown & Williamson,* 229 F.3d at 1131, 56 U.S.P.Q.2d at 1465 ("indicators of nonobviousness cannot overcome the strong evidence of obviousness") (*citing Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 769, 9 U.S.P.Q.2d 1417, 1427 (Fed. Cir. 1988) ("finding obviousness despite strong evidence of commercial success")).

Here, despite the passage of ***more than a decade***, there is ***no commercial success*** associated with the supposed invention of the '970 patent. The patent owner's one known attempt to commercialize something resembling the claims of the '970 patent was a pilot program called "Autograph," and Progressive pulled Autograph from the market by 2002. While Progressive has recently begun to offer what it terms "usage based insurance," these insurance policies such as "MyRate" and "Snapshot" – which determine *future* insurance costs based on *past* driving behavior – ***do not even practice the claimed invention*** of the '970 patent. But even if they did, these policies certainly would not demonstrate commercial success: more than 12 years after the Applicants filed their application for the '970 patent, these insurance policies are ***not even approved or offered*** in most states, and they represent ***at most a tiny fraction*** of issued auto policies.

Any supposed evidence of commercial success is also unavailing without a concrete correlation between the merits of the invention and the alleged success. *Richardson-Vicks Inc.,* 122 F.3d at 1483, 44 U.S.P.Q.2d at 1186 ("evidence of commercial success proffered by plaintiff is limited to sales data, and does not include evidence of market share, of growth in market share, of replacing earlier units sold by others or of dollar amounts, and no evidence of a

nexus between the sales and the merits of the invention") (internal quotation omitted). Here, Progressive can show neither a commercial success, nor any nexus to the supposed merits of its '970 patent's claims. As noted above, Progressive's available "usage based" insurance policies do not even practice the claimed invention: they use *past* driving behavior to determine *future* insurance costs, *not* to determine insurance costs for the *same* monitored period. And Progressive's Applicants admitted, during prosecution of the '970 patent, that this was *already known* before their supposed invention: collecting vehicle driver data and using it to assess insurance rates for upcoming periods was taught by the prior art.

In order to show the required nexus to the claimed invention for an argument of commercial success, Progressive would need to show both (1) that customers are actually buying insurance policies that use vehicle monitoring data to adjust and apply insurance ratings, costs, and premiums to the *same monitored time period*, and (2) that customers are choosing those insurance policies ***because of*** this policy feature of using monitored data to adjust and apply insurance costs, premiums and ratings to the *same monitored time period*. Mere suggestions that there are "usage based" insurance policies in existence that use monitored data to adjust future insurance costs are irrelevant, as this was admittedly known before the '970 patent. And, even if there were policies making data-based adjustments and applications to insurance ratings, costs and premiums in the same monitored period, and even if these policies were shown to be a significant marketplace success, this would be pertinent to a "commercial success" argument for obviousness purposes *only* if Progressive could prove it was this feature, and not others, that was driving demand. Again, Progressive cannot do so.

Progressive is also unable to demonstrate commercial success by pointing to licensing activity. "Licenses taken under the patent in suit may constitute evidence of

nonobviousness; however, only little weight can be attributed to such evidence if the patentee does not demonstrate 'a nexus between the merits of the invention and the licenses of record.'" *See In re GPAC Inc.*, 57 F.3d 1573, 1580, 35 U.S.P.Q.2d 1116, 1122 (Fed. Cir. 1995) (*quoting Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539, 218 U.S.P.Q. 871, 879 (Fed. Cir. 1983); *see also SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1358, 55 U.S.P.Q.2d 1927, 1933 (Fed. Cir. 2000) ("the mere existence of these licenses is insufficient to overcome the conclusion of obviousness"). While the Requester understands there may be a small number of licenses that *include* the '970 patent, the Requester is not aware of any licenses that are *limited solely to* the '970 patent, so Progressive cannot actually link these licenses to the merits of the claims of the '970 patent that are the subject of this Request. Furthermore, in view of the universe of hundreds of insurance companies offering vehicle insurance, this insignificant number of licenses is *de minimis*, and certainly does not prove commercial success. Even after the passage of more than a decade, the Requester is not aware of any significant licensing income that Progressive has received in connection with the '970 patent. Moreover, the Requester is unaware of <u>*any*</u> instance in which the '970 patent has been successfully commercialized by any U.S. licensee of the '970 patent – or for that matter that there has been any licensee with significant U.S. market share in vehicle insurance to begin with, let alone a nexus between a marketplace success and any merits of the '970 patent's supposed "invention." Indeed, licenses are often taken for reasons *other than* the presence of a valid and commercially significant patent, such as the avoidance of litigation, the minimal royalties at stake, a desire to acquire technology in addition to the patents, and the desire to foster a business relationship. As evidenced by the ongoing litigation between Progressive and the Requester, and the failure of other major vehicle insurers to take a license, there is certainly no industry acquiescence as to the

significance or validity of the '970 patent. Again, Progressive cannot demonstrate the connections required to support an argument of "commercial success."

One of the likely reasons there has not been a market success in commercializing the claims of the '970 patent is that the patent's specification and claims simply do not describe or disclose *how* to actually use the monitored data elements in practice – *i.e.*, *how* to adjust and apply an insurance rating, cost or premium based on monitored data to the same monitored period. And if Progressive argues that such adjustments and applications would already have been known to a person of ordinary skill at the time of the '970 patent's priority date, this will simply underscore that any commercial success is not actually linked to any patentable merits of Progressive's claimed invention disclosed in the '970 patent. In sum, Progressive simply cannot show the required nexus.

Finally, Progressive cannot base any claims of "commercial success" on a long felt but unsolved need and the failure of others to fulfill that need – factors that most often are treated together:

> If the patent in issue filled a need that was not only genuine, but long felt – that is, long consciously recognized – the inference is that for a long period of time actual artisans were attempting to solve the problem. The greater the need, and the longer it was felt, the stronger the inference. Actual documented failures of others enhance the inference that the patent in issue is a "new display of ingenuity beyond the compass of the routineer . . . ." *Kirsch Manufacturing Co. v. Gould Mersereau Co.*, 6 F.2d 793, 794 (2d Cir. 1925). The proposition, however, that the ordinary [skilled artisan's] failure to solve a long-felt problem may be relied upon safely as the measure of obviousness is as seductive as it is flawed.

Dickey-John Corp. v. Int'l Tapetronics Corp., 710 F.2d 329, 346, 219 U.S.P.Q. 402, 416 (7th Cir. 1983).

Here, the Applicants did not satisfy any long felt need, nor was there a failure of

others to satisfy any long-felt need. To the contrary, as reflected in the prior art submitted herewith, this is a long-standing art with broad disclosures from multiple sources addressing – well before the application for the '970 patent was filed – monitoring vehicle behavior and using that information to assess insurance rates for the same monitored time period (*i.e.*, the very insurance policy feature the Applicants argued as their basis for patentability). The broad, clear teachings of prior art preceding the '970 patent's earliest filing date belie any claim of failure by others. Moreover, the patent owner's own apparent failure over more than a decade to successfully commercialize the invention claimed in the '970 patent further discredits any suggestion that the Applicants filled some long-felt and unmet need.

The bottom line is that the '970 patent claims are based on an insurance policy feature that was old at the time the Applicants filed for a patent. They are rendered obvious by multiple prior art references. The overwhelming invalidity of the claims under 35 U.S.C. § 103 cannot be rebutted with secondary considerations, because there is no evidence more than 12 years after its filing date that the '970 patent made any substantive contributions to the relevant art.

III. DETAILED EXPLANATION OF THE PERTINENCE AND MANNER OF APPLYING THE PRIOR ART REFERENCES TO EVERY CLAIM FOR WHICH REEXAMINATION IS REQUESTED

As required under 37 C.F.R. § 1.510(b)(2), a detailed explanation of the pertinence and manner of applying the prior art references to the claims is provided here with Requester's proposed rejections. This detailed explanation is divided into four sections, three of which are based on the primary references, Kosaka (Section III.A), Lemelson (Section III.B), and Bouchard (Section III.C). The fourth, Section III.B describes admitted prior art (pursuant to MPEP § 2217) based on statements the Applicants made during prosecution of the '970 patent application.

As noted above, for purposes of this request, the Requester construes claim language according to MPEP 2111, such that claim terms are given their broadest reasonable interpretation. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d at 1364. When the claims are construed in this manner, or even in a narrower, more reasonable manner, all the claims are unpatentable in view of the prior art references presented herein. In construing the claim language in this manner or as otherwise set forth explicitly or implicitly herein, the Requester expressly reserves the right to argue a different claim construction in the pending litigation as appropriate to that proceeding.

A. Kosaka and Black Magic

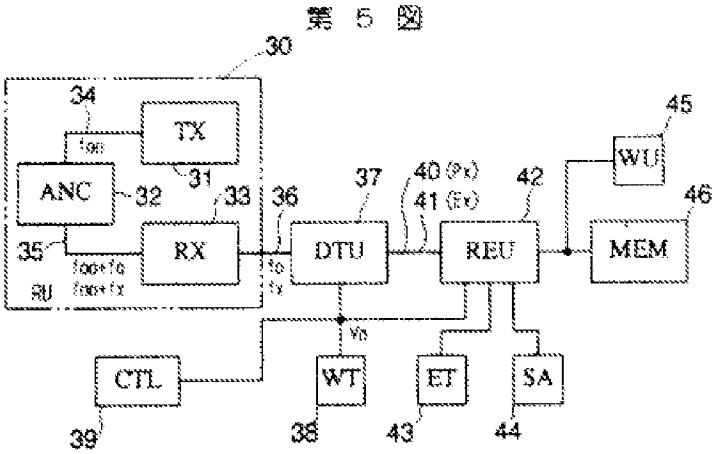
1. Overview of Kosaka

1. "Kosaka" (Ex. C) is Japanese Patent JP-A-4/182868, filed on November 19, 1990 and published on June 30, 1992.

2. Like the '970 patent, the Kosaka reference is directed to a risk evaluation device "for evaluating risk in moving bodies (vehicles) or insurance customers," and to an "insurance premium determination device that employs this risk evaluation device." *Id.* at 2.

3. The combined system in Kosaka includes: (1) sensors that detect states that contribute to risk, such as speed and driver operations; (2) a fuzzy logic deduction unit that continuously computes an assessment of risk using the sensor data and stores the risk evaluation values in memory; and (3) an insurance premium calculation unit that uses the stored risk evaluation values to determine and adjust an insurance premium. *Id.* at 4. All of the units operate in "real time," such that the "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk in the insurance customer." *Id.* at 2-3. Kosaka thus discloses monitoring and recording data

for a particular time period and using that information to assess an insurance premium for the same time period.



4. Figure 5 (above) is a "configuration diagram of a device that employs an insurance premium determination system in a risk evaluation device installed in a vehicle (automobile)." *Id.* at 6. Operator and vehicle characteristics are detected by "the doppler radar main unit 30, the speed detector 38, the main engine rotation rate detector 43, and the control operation detection part 44." *Id.* at 7. The "speed detector" for example, measures "ground speed," while the "control operation detection part 44 detects clearly intentional operations, for example, when there is a deviation in the rudder operation mechanism that is at or above a set value." *Id.* Thus, Kosaka teaches relating the driving characteristics to safety standards (*e.g.*, deviation above a safety value).

5. The "output V_0" of the speed detector 38 is also conducted to the "system activation control part 39." This system activation control part "keeps the system in an operating state when the 'self' speed V_0 *exceeds a set value*." *Id.* at 7 (emphasis added). As a result, the risk evaluation system in Kosaka may be activated and remains in an "operating state" while the

detected speed exceeds a set value. Therefore, "selected" data, such as the evaluated risk value corresponding to speed exceeding the set value, is stored.

6. The monitored data is "output to the risk evaluation unit 42." *Id.* The risk evaluation unit 42 then "performs real-time evaluation of the degree of risk during operation from the state signals of the automobile . . . using a signal processing process including fuzzy logic." A "fuzzy memory" (not pictured) "stores risk evaluation values." *Id.* at 4. The information is then used to determine a "real time" insurance premium. *Id.* at 4, 7. One of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a "database" in order to facilitate the retrieval and analysis of the data elements.

7. The monetary amount file part 46 "erases, from [a] prepayment money balance" stored in a memory, the "insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42." *Id.* As a result, this real-time determination and deduction of insurance premium "allows risk evaluations that change from hour to hour during travel to be reflected in the insurance premium." *Id.*

8. In addition, the Kosaka reference discloses a means for generating and communicating a warning "when the risk value exceeds a set value," *id.* at 7, thus indicating the determination of a "trigger event" (exceeding the set value) and generation of a signal corresponding to the trigger event.

2. Overview of Black Magic

9. The article entitled "An Interest in Black Magic – Motor Technology" was published on January 1, 1994 in *Insurance Age* magazine. *An Interest in Black Magic – Motor Technology*, Insurance Age, Jan. 1, 1994 (Ex. D). Black Magic discusses the use of "black box recorders" to monitor vehicle fleets to determine "driving speed, time and distance traveled and fuel consumption" and "at the end of each shift, data from the cartridge is downloaded to a

personal computer." *Id.* at 1. The fleet manager can then "use the information to assess operating efficiency and to analyze the performance of drivers in terms of exceeding maximum speeds, engine idling time and harsh deceleration." *Id.*

10. Years before any claimed priority date for the '970 patent, Black Magic also taught that global position systems (GPS) have "wider implications for the insurance industry, as [they] can produce all the data a black box can and record the vehicle's location." *Id.* at 2.

11. According to the article, "most insurers agree that the device is an invaluable aid to risk management . . . ." Indeed, "the information could be used to accurately rate premiums according to the styles of driving and locality of use." *Id.* at 2.

12. Black Magic also states that "Ford is developing GPS system that will combine an emergency location facility with a stolen vehicle tracking system. Both these functions use the vehicle's GPS receiver to locate its position, and this information is relayed to a central base using cellular telephony." Black Magic thus discloses communicating data representative of operator and vehicle driving characteristics to a remote system. *Id.* at 1.

3. Kosaka

13. A claim is anticipated if "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987); *see also* MPEP §2131. The Kosaka reference teaches explicitly, inherently, or implicitly each and every element required by independent claims 4, 5 and 6. The Kosaka reference likewise discloses each and every element required by dependent claims 7, 8 ("trigger events"), and 10 ("safety standards"). Kosaka similarly discloses each and every element required by dependent claim 13

("underwriting costs") because it teaches using an analysis of the data to assess actuarial and underwriting risks according to conventional, well-established insurance practices.

4. Claims 4-8, 10, and 13 Should be Rejected under 35 U.S.C. 102(b) as Anticipated by Kosaka

(a) Independent Claim 4

14. An overview of the reasons for rejection of claim 4 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

15. Independent claim 4 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [4.1] *A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period, comprising, steps of:*
>
> [4.2] *generating an initial operator profile;*
>
> [4.3] *monitoring operator driving characteristics during the selected period;*
>
> [4.4] *and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.*

16. Element [4.1] of claim 4 is a preamble that describes "*A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period*." To the extent this preamble is considered a limitation of the claim,[9] Kosaka discloses determining an insurance premium for a selected period based upon operator driving characteristics during the period. The insurance premium determination operates in "real time." Ex. C at 3. The risk evaluation unit performs "real-time" evaluation of the degree of risk and a

[9] *See* MPEP § 2111.02 Effect of Preamble ("The determination of whether a preamble limits a claim is made on a case-by-case basis in light of the facts in each case"). For ease of discussion, Requester addresses in the context of the preamble certain terms that also appear elsewhere.

"monetary amount file" deducts the "insurance premium change" from a "prepayment balance." *Id.* at 7. As a result, "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk." *Id.* at 2.

17. Element [4.2] of claim 4 recites "*generating an initial operator profile*." Kosaka teaches generating an initial operator profile, disclosing that a "prepayment amount that has been paid in advance" is "stored" and the insurance premium change is deducted from this prepayment amount. *Id.* at 5-6. A person of ordinary skill in the art would have recognized that storing a "prepayment" in advance explicitly teaches, or at a minimum inherently discloses, generating, in advance, an initial operator profile so that the appropriate prepayment can be calculated for the insured operator.

18. Element [4.3] of claim 4 recites "*monitoring operator driving characteristics during the selected period*." Kosaka teaches monitoring operator driving characteristics of the particular operator by disclosing monitoring "states in the operator or moving body used as the subject of risk evaluation which contribute to risk" using sensors, which include "a doppler radar main unit, the speed detector, the main engine rotation rate detector, and the control operation detection part." *Id.* at 4, 7. The sensors monitor data representative of an operating state of a vehicle or an action of the operator, such as the speed. *Id.* at 3, 7. The sensors "operate in real time," such that the data is monitored continuously. *Id.* at 3. A person of ordinary skill in the art would have recognized that monitoring data in "real time" explicitly teaches monitoring data for a selected (current) time period.

19. Element [4.4] of claim 4 recites "*and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period*." Kosaka

teaches deciding a cost of vehicle insurance based upon operating characteristics. A "fuzzy logic" risk evaluation unit continuously computes an assessment of risk, the "risk evaluation values," using the monitored data and stores the risk evaluation values in "fuzzy memory." *Id.* at 4. A "premium calculation" unit performs "temporal integration" using the risk evaluation values, and "calculates insurance premiums." *Id.* Kosaka further discloses that the insurance premium determined is for the period monitored because the insurance premium determination operates in "real time." *Id.* at 3. The risk evaluation unit performs "real-time" evaluation of the degree of risk and a "monetary amount file" deducts the "insurance premium change" from a "prepayment balance." *Id.* at 7. As a result, "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk." *Id.* at 2.

20. The following claim chart demonstrates, in further detail, how each element is disclosed by Kosaka.

Claim Element	Kosaka
4. A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period, comprising, steps of:	**To the extent this preamble is considered a limitation to the claim, Kosaka discloses insuring a vehicle operator for a selected period based upon operator driving characteristics during the period at 2:** "The present invention relates to a risk evaluation device for evaluating risk in moving bodies (vehicles) or insurance customers, and an insurance premium determination device that employs this risk evaluation device." "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states*** that lead to risk in the insurance customer."
generating an initial operator profile;	**Kosaka discloses generating an initial operator profile at 5-6:** "The prepayment amount that has been paid in advance . . . is stored in the logic part 21, and a process is carried out in which a unit fee is taken from this prepayment amount." *Storing a "prepayment" in advance explicitly teaches, or at a minimum inherently discloses, generating, in advance, an initial operator profile so that the appropriate prepayment can be calculated for the insured operator.*

Claim Element	Kosaka
monitoring operator driving characteristics during the selected period;	**Kosaka discloses monitoring operator driving characteristics at 3:** "[T]he risk contributing state detection means has a relative speed detection means and integration means thereof that ***detects speed relative to a preceding moving body*** and a means for detecting the reflected wave level from the preceding moving body." **Kosaka discloses monitoring in real time at 3:** "[T]he ***risk contributing state detection means*** and the risk evaluation means ***operate in real time***." *Monitoring data in real-time (e.g. continuously) explicitly teaches monitoring data for a selected (current) time period.*
and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.	**Kosaka discloses deciding a cost of insurance for the period based upon operating characteristics monitored in that period at 7:** "The risk evaluation unit 42 then performs real-time evaluation of the degree of risk during operation from the state signals of the automobile [] using a signal processing process including fuzzy logic. . . . [A] monetary amount file part 46 erases, from the prepayment money balance, the insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42. . . . In addition, in this example of embodiment, an insurance premium determination system is used in addition to risk evaluation, which ***allows risk evaluations that change from hour to hour during travel to be reflected in the insurance premium***." *Kosaka therefore teaches monitoring operator driving characteristics during a particular time period and using that information to assess an insurance premium for the same time period in "real time."*

(b) Independent Claim 5

21. An overview of the reasons for rejection of claim 5 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

22. Independent claim 5 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [5.1] *A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period,*

whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising:

[5.2] *determining an initial insured profile and a base cost of vehicle insurance based on said insured profile;*

[5.3] *monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during the selected period;*

[5.4] *recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards;*

[5.5] *consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost; and,*

[5.6] *producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.*

23. Element [5.1] of claim 5 is a preamble that describes "*A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising.*" To the extent this preamble is considered a limitation of the claim, Kosaka discloses determining an insurance premium for a selected period based upon monitored operator driving characteristics during the period, including monitoring, recording and communicating data representative of operator and vehicle driving characteristics. Kosaka discloses, among other things, that "[w]hen the risk value exceeds a set value, a warning is sent by a warning device 45 to the operator." Ex. C at 7. Kosaka's disclosure of the remainder of the preamble is further detailed in the claim chart, below, and in connection with the other limitations of this claim.

24. Element [5.2] of claim 5 recites "*determining an initial insured profile and a base cost of vehicle insurance based on said insured profile*." Kosaka teaches determining an initial insured profile and a base cost of vehicle insurance based on the profile by disclosing that a "prepayment amount that has been paid in advance" is "stored" and the insurance premium change is deducted from this prepayment amount. Ex. C at 5-6. A person of ordinary skill in the art would have recognized that storing a "prepayment" in advance explicitly teaches, or at a minimum inherently discloses, generating and collecting, in advance, an initial operator profile and a base cost of vehicle insurance based on the operator profile, so that the appropriate prepayment can be calculated for the insured operator.

25. Element [5.3] of claim 5 recites "*monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during the selected period*." Kosaka teaches monitoring a plurality of data elements by disclosing monitoring "states in the operator or moving body . . . which contribute to risk" using sensors, which include "a doppler radar main unit, the speed detector, the main engine rotation rate detector, and the control operation detection part." *Id.* at 4, 7. The sensors monitor data representative of an operating state of a vehicle or an action of the operator, such as the speed. *Id.* at 3, 7. The sensors "operate in real time," such that the data is monitored continuously. *Id.* at 3. A person of ordinary skill in the art would have recognized that monitoring data in "real time" explicitly teaches monitoring data for a selected (current) time period.

26. Element [5.4] of claim 5 recites "*recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards*." Kosaka teaches recording data elements by disclosing that the a "fuzzy logic" risk evaluation unit continuously computes an assessment of risk – the "risk evaluation values" –

using the monitored data and stores the risk evaluation values in "fuzzy memory." *Id.* at 4. A "premium calculation" unit performs "temporal integration" using the risk evaluation values, and "calculates insurance premiums." *Id.*

27. Kosaka further teaches that "selected" data elements are recorded. The "output V_0" of the "speed detector" is conducted to the "system activation control part 39." This system activation control part "keeps the system in an operating state when the 'self' speed V_0 *exceeds a set value*." *Id.* at 7 (emphasis added). As a result, the system in Kosaka – which evaluates monitored data, records the risk evaluation values and determines insurance premiums – may be activated and remains in an "operating state" while the detected speed exceeds a set value. Therefore, "selected" data are recorded once the system determines that they have a preselected relationship to safety standards (*e.g.*, speed exceeding a set value). Furthermore, a person of ordinary skill in the art would have understood that the "set value" used to evaluate speed corresponds to predetermined safety standards.

28. Element [5.5] of claim 5 recites "*consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost.*" Kosaka teaches consolidating selected data for identifying an insurance surcharge or discount. A "premium calculation part" performs "temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums." *Id.* at 4. Consequently, the "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk in the insurance customer." *Id.* at 2.

29. Element [5.6] of claim 5 recites "*producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.*" Kosaka teaches producing a final cost of insurance from the base cost and the insurance premium

change. A "monetary money file part 46" deducts the insurance premium change from the "prepayment money balance." *Id.* at 7. As a result, the "risk evaluations that change from hour to hour during travel" is "reflected in the insurance premium." *Id.* at 7.

30. The following claim chart demonstrates, in further detail, how each element is disclosed by Kosaka.

Claim Element	Kosaka
5. A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Kosaka discloses determining a cost of vehicle insurance for a selected period based upon operator driving characteristics during the period at 2:** "The present invention relates to a risk evaluation device for evaluating risk in moving bodies (vehicles) or insurance customers, and an insurance premium determination device that employs this risk evaluation device." "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states*** that lead to risk in the insurance customer." **To the extent this preamble is considered a limitation to the claim, Kosaka discloses using predetermined safety standards at 7:** "The output V_0 of this speed detector 38 is conducted to the aforementioned signal preprocessing unit 37 and is also conducted to the system activation control part 39. This system activation control part keeps the system in an operating state when the "self" speed V_0 ***exceeds a set value***." *A person of ordinary skill in the art would have understood that speed is representative of vehicle and operator characteristics, and that the set values used for evaluating speed correspond to predetermined safety standards.* **To the extent this preamble is considered a limitation of the claim, Kosaka discloses communicating data representative of operator and vehicle driving characteristics at 7:** "states in the operator or moving body used as the subject of risk evaluation which contributes to risk are ***respectively detected by the doppler radar main unit 30, the speed detector 38, the main engine rotation rate detector 43, and the control operation detection part 44***. The risk evaluation unit 42 continually evaluates risk using fuzzy logic on fuzzy input values which are input as signals that express these risk contributing states. ***When the risk value exceeds a set value, a warning is sent by a warning device 45 to the operator***."
determining an initial insured profile and a base	**Kosaka discloses generating an initial operator profile at**

Claim Element	Kosaka
cost of vehicle insurance based on said insured profile;	**5-6:** "The prepayment amount that has been paid in advance . . . is stored in the logic part 21, and a process is carried out in which a unit fee is taken from this prepayment amount." *Storing a "prepayment" in advance explicitly teaches, or at a minimum inherently discloses, generating and collecting, in advance, an initial operator profile and a base cost of vehicle insurance based on the operator profile, so that the appropriate prepayment can be calculated for the insured operator.*
monitoring a plurality of data elements	**Kosaka discloses monitoring a plurality of data elements at 7:** "[S]tates in the operator or moving body used as the subject of risk evaluation which contribute to risk are respectively detected by the doppler radar main unit 30, the speed detector 38, the main engine rotation rate detector 43, and the control operation detection part 44."
representative of an operating state of a vehicle or an action of the operator during the selected period;	**Kosaka discloses monitoring an operating state of the vehicle at 3:** "[T]he risk contributing state detection means has a relative speed detection means and integration means thereof that ***detects speed relative to a preceding moving body*** and a means for detecting the reflected wave level from the preceding moving body." **Kosaka discloses monitoring in real time at 3:** "[T]he ***risk contributing state detection means*** and the risk evaluation means ***operate in real time***." *Monitoring data in real-time (e.g. continuously) explicitly teaches monitoring data for a selected (current) time period.*
recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards;	**Kosaka discloses recording data elements relative to determining a cost of insurance for the vehicle at 4:** "The fuzzy logic part 3 determines comprehensive risk based on reasoning utilizing vague empirical knowledge through the input of the internal measured data and the external measured data. ***The fuzzy memory 4 stores risk evaluation values*** determined when fuzzy logic has been carried out in advance offline. The ***premium calculation*** part 6 performs temporal ***integration*** and computation of risk evaluation values, and thereby ***calculates insurance premiums***. . ." **Kosaka discloses that the system is activated when the detected speed exceeds a set value at 7:** "The output V_0 of this speed detector 38 is conducted to the aforementioned signal preprocessing unit 37 and is also conducted to the system activation control part 39. This system activation control part keeps the system in an operating state when the "self" speed V_0 ***exceeds a set value***." *The system in Kosaka, which evaluates the monitored data,*

Claim Element	Kosaka
	records the evaluated risk, and determines a cost of insurance, is activated when the detected speed exceeds a set value. Therefore, "selected" data is recorded once the system determines that it is relevant (e.g., speed exceeding set value). *Furthermore, a person of ordinary skill in the art would have understood that the set values used to evaluate speed correspond to predetermined safety standards.*
consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost; and,	**Kosaka discloses consolidating selected data for identifying an insurance charge at 4:** "The premium calculation part 6 performs temporal *integration* and computation of risk evaluation values, and ***thereby calculates insurance premiums*** . . . In order to carry out time integration, a system clock 5 is connected to the premium calculation part 6 thereof." **Kosaka discloses identifying a surcharge or discount to be applied to the base cost (e.g., insurance fluctuation) at 2:** "[A]n objective of the invention is to provide an insurance premium determination device whereby insurance premiums can be increased or decreased by ***continually determining insurance premium changes*** through the detection of states that lead to risk in the insurance customer."
producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.	**Kosaka discloses producing a final cost of insurance at 4:** "The premium calculation part 6 performs temporal ***integration*** and computation of risk evaluation values, and ***thereby calculates insurance premiums***." **Kosaka discloses determining a cost of insurance during the selected time period in real time at 7:** "The risk evaluation unit 42 then performs real-time evaluation of the degree of risk during operation from the state signals of the automobile [] using a signal processing process including fuzzy logic. . . . [A] monetary amount file part 46 erases, from the prepayment money balance, the insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42. . . . In addition, in this example of embodiment, an insurance premium determination system is used in addition to risk evaluation, which ***allows risk evaluations that change from hour to hour during travel to be reflected in the insurance premium***." **Kosaka discloses that the final cost of insurance is determined from a base cost at 7:** "This monetary amount file part 46 erases, from the prepayment money balance, the insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42" **Kosaka discloses that the final cost of insurance is determined from the surcharge or discount (e.g., insurance fluctuation) at 2:** "[A]n objective of the invention is to provide an insurance

Claim Element	Kosaka
	premium determination device whereby insurance premiums can be increased or decreased by ***continually determining insurance premium changes*** through the detection of states that lead to risk in the insurance customer."

(c) Independent Claim 6

31. An overview of the reasons for rejection of claim 6 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

32. Independent claim 6 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [6.1] *A method of monitoring a human controlled power source driven vehicle, the method comprising:*
>
> [6.2] *extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;*
>
> [6.3] *analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements; and,*
>
> [6.4] *correlating the group data values to preset values in a second memory and generating an output data value based on the correlation wherein the output data value is used to compute an insurance rating for the vehicle FOR the data collection period.*

33. Element [6.1] of claim 6 is a preamble that describes "*A method of monitoring a human controlled power source driven vehicle, the method comprising.*" To the extent this preamble is considered a limitation of the claim, Kosaka teaches a method of monitoring "states in the operator or moving body . . . which contribute to risk." Ex. C at 7.

34. Element [6.2] of claim 6 recites "*extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of*

the vehicle and the at least one human's actions during a data collection period." Kosaka teaches extracting data from sensors, disclosing that "an operational amplifier . . . extracts the analog signal E(x) representing the speed" and "outputs it to the risk evaluation unit." *Id.* at 8. A person of ordinary skill in the art would have understood that the speed is representative of the operating state of the vehicle and of the human driver's action. Kosaka further discloses that the "risk contributing state detection means and the risk evaluation means operate in real time." A person of ordinary skill in the art would have recognized that extracting data in real time (*e.g.*, continuously) explicitly teaches extracting data for a particular (current) data collection period.

35. Element [6.3] of claim 6 recites "*analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements*." Kosaka teaches analyzing, grouping, and storing the data elements related to a predetermined group of elements by disclosing that an "integrator" integrates the "relative speed of the moving body and calculates the approximate distance," and integrates "the impulse waveform with the output from the control operation detection part 44 defined in advance as an event signal." *Id.* at 8. The output value from the "integrator" is used as "fuzzy input value for risk evaluation." *Id.* A person of ordinary skill in the art would have recognized that analyzing and grouping data elements as "input value[s] for risk evaluation" explicitly teaches, or at a minimum inherently discloses, storing the data elements in a "first" memory or region of memory.

36. Element [6.4] of claim 6 recites "*correlating the group data values to preset values in a second memory and generating an output data value based on the correlation wherein the output data value is used to compute an insurance rating for the vehicle FOR the data collection period*." Kosaka teaches correlating the group data values to preset values by

disclosing that the "output V_0" of the "speed detector" is conducted to the "system activation control part 39." This system activation control part "keeps the system in an operating state when the 'self' speed V_0 *exceeds a set value*." *Id.* at 7 (emphasis added). A person of ordinary skill would have understood Kosaka's disclosure to teach that "set value" for speed is stored in a second memory or region of memory separate from group data values in a first memory or region of memory (see element [6.3]) so they may be compared with one another.

37. Kosaka further teaches generating an output data value based on the correlation by disclosing that a "comprehensive evaluation of the states of the vehicle and the operator is carried out, and a risk evaluation value is obtained . . . ." *Id.* at 3. Kosaka teaches using the output data value to determine an insurance premium by disclosing that the "premium calculation part 6 performs temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums . . . ." *Id.* at 4. A person of ordinary skill in the art would have recognized the level of risk exposure to be a "rating."

38. Kosaka further discloses that the insurance premium determined is for the data collection period by disclosing that the insurance premium determination operates in "real time." *Id.* at 3. The risk evaluation unit performs "real-time" evaluation of the degree of risk and a "monetary amount file" deducts from a "prepayment balance" the "insurance premium change." *Id.* at 7. As a result, "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk." *Id.* at 2.

39. The following claim chart demonstrates, in further detail, how each element is disclosed by Kosaka.

Claim Element	Kosaka
6. A method of monitoring a human controlled power source driven vehicle, the method	**To the extent this preamble is considered a limitation to the claim, Kosaka discloses monitoring a human**

Claim Element	Kosaka
comprising:	**controlled power source driven vehicle at 7:** "[S]tates in the operator or moving body used as the subject of risk evaluation which contribute to risk are respectively detected by the doppler radar main unit 30, the speed detector 38, the main engine rotation rate detector 43, and the control operation detection part 44."
extracting one or more data elements from at least one sensor	**Kosaka discloses extracting data elements from sensors at 8:** "An operational amplifier 56 receives this signal and the analog signal V_0 representing the "self" ground speed, ***extracts*** the analog signal E(x) ***representing the speed relative to the frontward moving body***, and outputs it to the risk evaluation unit 42."
wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;	**Kosaka discloses extracting the operating state of the vehicle at 8:** "An operational amplifier 56 receives this signal and the analog signal V_0 representing the "self" ground speed, ***extracts*** the analog signal E(x) ***representing the speed relative to the frontward moving body***, and outputs it to the risk evaluation unit 42." *A person of ordinary skill in the art would have understood that speed is representative of the operating state of the vehicle and of the human driver's actions.* **Kosaka discloses extracting data in real time at 3:** "[T]he ***risk contributing state detection means*** and the risk evaluation means ***operate in real time***." *Extracting data in real-time (e.g. continuously) explicitly teaches extracting data for a selected (current) time period.*
analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements; and,	**Kosaka discloses analyzing, grouping, and storing data elements related to a predetermined group of elements at 8:** "This integrator 60 ***integrates*** the signal E(x) representing the relative speed of the moving body and calculates the approximate distance from the relative speed. . . . Another integrator 63 ***integrates*** and smoothes the impulse waveform ***with*** the output from the control operation detection part 44 ***defined in advance*** as an event signal. Subsequently, an operation frequency index is determined from the smoothed value. This value is output to the second fuzzy logic part 64 as a ***fuzzy input value*** for risk evaluation." *Analyzing and grouping data elements as "input value[s] for risk evaluation" explicitly teaches, or at a minimum inherently discloses, storing the data elements in a "first" memory or region of memory.*
correlating the group data values to preset values in a second memory and	**Kosaka discloses correlating the group data values to preset values at 7:** "The output V_0 of this speed detector 38 is conducted to the aforementioned signal preprocessing unit 37 and is also

Claim Element	Kosaka
	conducted to the system activation control part 39. This system activation control part keeps the system in an operating state when the "self" speed V_0 ***exceeds a set value***." *A person of ordinary skill would have understood Kosaka's disclosure to teach that "set value" for speed is stored in a second memory or region of memory separate from group data values in a first memory or region of memory so they may be compared with one another.*
generating an output data value based on the correlation	**Kosaka discloses generating an output value based on the correlation at 3:** "In other words, comprehensive evaluation of the states of the vehicle and the operator is carried out, and a risk evaluation value is obtained that is matched to empirical evaluation of an individual."
wherein the output data value is used to compute an insurance rating for the vehicle	**Kosaka discloses using the output data to compute an insurance premium at 4:** "The premium calculation part 6 performs temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums. . ." *A person of ordinary skill in the art would have understood the level of risk exposure to be a "rating."*
FOR the data collection period	**Kosaka discloses determining a cost of insurance during the selected time period 2:** "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states*** that lead to risk in the insurance customer." **Kosaka discloses determining a cost of insurance during the selected time period in real time at 7:** "The risk evaluation unit 42 then performs real-time evaluation of the degree of risk during operation from the state signals of the automobile [] using a signal processing process including fuzzy logic. . . . [A] monetary amount file part 46 erases, from the prepayment money balance, the insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42. . . . In addition, in this example of embodiment, an insurance premium determination system is used in addition to risk evaluation, which ***allows risk evaluations that change from hour to hour during travel to be reflected in the insurance premium***." *Kosaka therefore teaches monitoring driver behavior during a particular time period and using that information to assess an insurance premium for the same time period in "real time."*

(d) Dependent Claim 7

40. An overview of the reasons for rejection of claim 7 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

41. Dependent claim 7 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [7.1] "*The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,*
>
> [7.2] *storing and transmitting a signal corresponding to the determined triggering event to a receiving system.*"

42. Element [7.1] of claim 7 recites that "[t]*he method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory.*" As discussed above, Kosaka discloses the method of claim 6. *See supra* Section III.A(4)(c).

43. Kosaka teaches correlating data to trigger events if a determination is made that the data elements indicate predetermined trigger events, disclosing that "when the risk value exceeds a set value, a warning is sent by a warning device 45 to the operator." Ex. C at 7. A person of ordinary skill would have understood Kosaka's disclosure to teach that the "set value[s]" for risk as corresponding to one or more types of trigger events, and that such types of trigger events would be stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory (see element [6.3]) and the set values for speed stored in the second memory or region of memory (see element [6.4]), thus enabling the

risk values derived based on the group data values to be compared to each trigger event's "set value[s]", and thereby correlate the group data values to predetermined trigger events.

44. Element [7.2] of claim 7 recites "*storing and transmitting a signal corresponding to the determined triggering event to a receiving system.*" Kosaka teaches generating a signal corresponding to the determined trigger event by disclosing that "when the risk value exceeds a set value, a warning is sent by a warning device 45 to the operator." *Id.* A person of ordinary skill in the art would have understood that generating and transmitting a signal explicitly teaches, or at a minimum inherently discloses, storing the signal in memory such that it can be accessed and transmitted.

45. As discussed above, Kosaka discloses the method of claim 6. The following claim chart demonstrates, in further detail, how each element is disclosed by Kosaka.

Claim Element	Kosaka
7. The method according to claim 6, further including the steps of:	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 6.**
determining if the one or more data elements indicate one or more predetermined triggering events,	**Kosaka discloses determining if a data element indicates a predetermined trigger event at 7:** "When the ***risk value exceeds a set value***, a warning is sent by a warning device 45 to the operator."
where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory;	**Kosaka discloses where the determination is positive, correlating data to a triggering event at 7:** "***When the risk value exceeds a set value***, a warning is sent by a warning device 45 to the operator." *A person of ordinary skill would have understood Kosaka's disclosure to teach that the "set value[s]" for risk as corresponding to one or more types of trigger events, and that such types of trigger events would be stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory (see element [6.3]) and the set values for speed stored in the second memory or region of memory (see element [6.4]), thus enabling the risk values derived based on the group data values to be compared to each trigger event's "set value[s]", and thereby correlate the group data values to predetermined trigger events*
and, storing and transmitting a signal corresponding to the determined triggering event to a receiving system.	**Kosaka discloses generating a signal corresponding to determined trigger event at 7:** "***When the risk value exceeds a set value***, a warning is sent by a warning device 45 to the operator."

Claim Element	Kosaka
	Generating and transmitting a signal explicitly teaches, or at a minimum inherently discloses, storing the signal in memory such that it can be accessed and transmitted.

(e) Dependent Claim 8

46. An overview of the reasons for rejection of claim 8 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

47. Claim 8 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis. For the sake of comparison, dependent claim 7 is also provided below. It is readily seen that various elements are essentially identical to corresponding elements in method claim 7.

	Claim 7		**Claim 8**
[7.1]	The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,	[8.1]	The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,
[7.2]	storing ***and*** transmitting a signal corresponding to the determined triggering event to a receiving system.	[8.2]	storing ***or*** transmitting a signal corresponding to the determined triggering event to a receiving system.

48. Accordingly, the analysis for elements [8.1] and [8.2] is essentially the same as that provided above for elements [7.1] and [7.2], respectively. Element [8.2] recites "storing or transmitting" information while element [7.2] recites "storing and transmitting." Accordingly, the analysis for narrower element [7.2] is the same for element [8.2].

49. As discussed above, Kosaka discloses the method of claim 6. *See supra* Section III.A(4)(c). The following claim chart demonstrates, in further detail, how each element is disclosed by Kosaka.

Claim Element	Kosaka
8. The method according to claim 6, further including the steps of:	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 6.**
determining if the one or more data elements indicate one or more predetermined triggering events,	**Kosaka discloses determining if a data element indicates a predetermined trigger event at 7:** "***When the risk value exceeds a set value***, a warning is sent by a warning device 45 to the operator."
where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory;	**Kosaka discloses where the determination is positive, correlating data to a triggering event at 7:** "***When the risk value exceeds a set value***, a warning is sent by a warning device 45 to the operator." *A person of ordinary skill would have understood Kosaka's disclosure to teach that the "set value[s]" for risk as corresponding to one or more types of trigger events, and that such types of trigger events would be stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory (see element [6.3]) and the set values for speed stored in the second memory or region of memory (see element [6.4]), thus enabling the risk values derived based on the group data values to be compared to each trigger event's "set value[s]", and thereby correlate the group data values to predetermined trigger events.*
and, storing or transmitting a signal corresponding to the determined triggering event to a receiving system.	**Kosaka discloses generating a signal corresponding to determined trigger event at 7:** "***When the risk value exceeds a set value***, a warning is sent by a warning device 45 to the operator." *Generating and transmitting a signal explicitly teaches, or at a minimum inherently discloses, storing the signal in memory such that it can be accessed and transmitted.*

(f) Dependent Claim 10

50. An overview of the reasons for rejection of claim 10 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

51. Dependent claim 10 recites that "*The method according to claim 6, further comprising the steps of: using safety or other actuarial standard values as the preset values;*

and, generating an adjusted insurance cost as the output data value." As discussed above, Kosaka discloses the method of claim 6. *See supra* Section III.A(4)(c).

52. Kosaka teaches using safety standard values as preset values, disclosing the "system activation control part keeps the system in an operating state when the 'self' speed V_0 exceeds a set value." Ex. C at 7. A person of ordinary skill in the art would have understood that the "set value" used to evaluate speed corresponds to a predetermined safety value. Kosaka also teaches generating an adjusted insurance cost as the output data value by disclosing that the "premium calculation part 6 performs temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums." *Id.* at 4.

53. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka
10. The method according to claim 6, further comprising the steps of:	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 6.**
using safety or other actuarial standard values as the preset values;	**Kosaka discloses using safety or actuarial standard values as preset values at 7:** "The output V_0 of this speed detector 38 is conducted to the aforementioned signal preprocessing unit 37 and is also conducted to the system activation control part 39. This system activation control part keeps the system in an operating state when the "self" speed V_0 ***exceeds a set value***." *A person of ordinary skill in the art would have understood that the set values used to evaluate speed correspond to predetermined safety values.*
and, generating an adjusted insurance cost as the output data value.	**Kosaka discloses generating an adjusted insurance cost as the output data value at 4:** "The premium calculation part 6 performs temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums. . ."

(g) Dependent Claim 13

54. An overview of the reasons for rejection of claim 13 in light of Kosaka is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

55. Dependent claim 13 recites that "*The method according to claim 6, further comprising the steps of: using safety or other actuarial standard values as the preset values; and, generating an adjusted underwriting cost as the output data value.*" As discussed above, Kosaka discloses the method according to claim 6. *See supra* Section III.A(4)(c).

56. Kosaka teaches using safety values as preset values by disclosing that the "system activation control part keeps the system in an operating state when the 'self' speed V_0 exceeds a set value." Ex. C at 7. A person of ordinary skill in the art would have understood that the "set value" used to evaluate speed corresponds to a predetermined safety value. Kosaka further teaches generating an adjusted insurance premium as the output value by disclosing that the "premium calculation part 6 performs temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums . . . ." *Id.* at 4. A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

57. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka
13. The method according to claim 6, further comprising the steps of:	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 6.**
using safety or other actuarial standard values as the preset values;	**Kosaka discloses using safety or actuarial standard values as preset values at 7:** "The output V_0 of this speed detector 38 is conducted to the aforementioned signal preprocessing unit 37 and is also conducted to the system activation control part 39. This system activation control part keeps the system in an operating state when the "self" speed V_0 ***exceeds a set value***."

Claim Element	Kosaka
	A person of ordinary skill in the art would have understood that the set values used to evaluate speed correspond to predetermined safety values.
and, generating an adjusted underwriting cost as the output data value.	**Kosaka discloses generating an adjusted insurance premium at 4:** "The premium calculation part 6 performs temporal integration and computation of risk evaluation values, and thereby calculates insurance premiums. . ." *A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.*

5. Kosaka and Black Magic

58. A combination of the Kosaka reference and the Black Magic article teaches explicitly, inherently or implicitly, all the elements required by independent claims 1 and 2. This combination similarly discloses all of the elements required by dependent claims 3 (raw, derived and calculated data elements), 11 (safety standards, using location and time to generate insurance cost) and 12 (adjusted insurance cost applied retrospectively). *See infra* at Sections III.A(6)(c)-(e). Furthermore, both Black Magic ("accurately rate premiums according to the styles of driving and locality of use") and Kosaka (insurance premium calculation unit that uses the evaluated value of risk to determine an insurance premium) similarly disclose all of the elements required by dependent claims 14-15 ("underwriting costs") because they teach using an analysis of the data to assess actuarial and underwriting risks according to conventional, well-established insurance practices.

59. The Supreme Court has explained that "[u]nder the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed." *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007). There are ample reasons why a person of ordinary skill in the art would have combined

the teachings of Kosaka with Black Magic, including the similar purposes of the two references and the explicit teachings of motivations to combine in Black Magic. Thus even though this is not a requirement for finding obviousness,[10] these references in both their explicit teachings and their descriptions of parallel features and a common purpose confirm a motivation to combine.

60. The similar purposes of the two references would have motivated a person of ordinary skill in the art to combine their teachings. Both Kosaka and Black Magic discuss using vehicle telematics for insurance purposes. Kosaka, for example, discloses monitoring and recording vehicle and operator data, such as speed, for a particular time period, and using that information to assess an insurance premium for the same time period. *See supra* at Section III.A(1); Ex. C at 2-4. Similarly, Black Magic discloses using both speed and location data for determining insurance rates. *See supra* at Section III.A(2); Ex. D at 1-2.

61. Moreover, Black Magic explicitly states that the use of "GPS technology" was recognized as "an invaluable aid" to determining insurance premiums. *See supra* at Section III.A(2); Ex. D at 2. One of ordinary skill in the art at the time would thus have recognized that the Kosaka system of determining insurance rates in real-time using vehicle operation data such as speed and operator actions would be enhanced by incorporating the similar but more sophisticated "GPS technology" discussed in Black Magic in order to use the additional vehicle operation data point of location in premium determination.

[10] *See Id.* at 1741-42, 82 U.S.P.Q.2d at 1397.

6. Claims 1-3, 11-12, and 14-15 Should be Rejected under 35 U.S.C. 103(a) as Obvious in Light of Kosaka in View of Black Magic

(a) Independent Claim 1

62. An overview of the reasons for rejection of claim 1 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

63. Independent claim 1 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [1.1] *A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising,*
>
> [1.2] *monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,*
>
> [1.3] *recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period*
>
> [1.4] *said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.*

64. Element [1.1] of claim 1 is a preamble that recites "*A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising.*" To the extent this preamble is considered a limitation of the claim, Kosaka teaches monitoring data elements representative of operator or vehicle driving characteristics by disclosing that "states in the operator or moving body . . . which contribute to risk" are detected using sensors. Ex. C at 4, 7. A "fuzzy logic" risk evaluation unit continuously computes an assessment of risk – the "risk evaluation values" – using the monitored data, and stores the risk evaluation values in "fuzzy memory." *Id.* at 4. A person of

ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

65. Element [1.2] of claim 1 recites "*monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period*." Kosaka teaches monitoring a plurality of data elements by disclosing that "states in the operator or moving body . . . which contribute to risk" are detected using sensors, which include "a doppler radar main unit, the speed detector, the main engine rotation rate detector, and the control operation detection part." *Id.* at 4, 7. The sensors monitor data representative of an operating state of a vehicle or an action of the operator, such as the speed. *Id.* at 3, 7. The sensors "operate in real time," such that the data is monitored continuously. *Id.* at 3. A person of ordinary skill in the art at the time would have recognized that monitoring in "real time" explicitly teaches monitoring data for a selected (current) time period.

66. Element [1.3] of claim 1 recites "*recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period*." Kosaka teaches recording the plurality of data elements, disclosing that a "fuzzy logic" risk evaluation unit continuously computes an assessment of risk – the "risk evaluation values," – using the monitored data, and stores the risk evaluation values in "fuzzy memory." *Id.* at 4. Kosaka further teaches using the data elements to determine a cost of insurance, disclosing that a "premium calculation" unit performs "temporal integration" using the risk evaluation values, and "calculates insurance premiums." *Id.* A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

67. Kosaka further teaches that selected data elements are recorded. The "output V_0" of the "speed detector" is conducted to the "system activation control part 39." This system activation control part "keeps the system in an operating state when the 'self' speed V_0 *exceeds a set value*." *Id.* at 7 (emphasis added). As a result, the system in Kosaka, which evaluates monitored data, records the risk evaluation values and determines insurance premiums, may be activated and remains in an "operating state" while the detected speed exceeds a set value. Therefore, "selected" data are recorded once the system determines that it is appropriate (*e.g.*, speed exceeding a set value).

68. Kosaka further teaches that the insurance premium determined is for the period monitored. The insurance premium determination operates in "real time." *Id.* at 3. The risk evaluation unit performs "real-time" evaluation of the degree of risk and a "monetary amount file" deducts the "insurance premium change" from a "prepayment balance." *Id.* at 7. As a result, "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk." *Id.* at 2.

69. Element [1.4] of claim 1 recites "*said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.*" Black Magic, which also relates to vehicle monitoring systems described as being useful for insurance price calculations, discloses using a "black box" unit to "record[] information such as driving speed, time, and distance travelled and fuel consumption." Ex. D at 1. Black Magic also discloses that "GPS technology" can record "all the data a black box can and record the vehicle's location." *Id.* A person of ordinary skill in the art would have recognized that Black Magic's teaching of simultaneously recording the vehicle speed, time and location explicitly teaches, or at a minimum inherently discloses, recording a corresponding log of the speed for the time and

location. According to Black Magic, the recorded information "could be used to accurately rate premiums according to styles of driving and locality of use." *Id*. at 2.

70. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose each element of claim 1. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
1. A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Kosaka discloses a method of monitoring data elements representative of operator or vehicle driving characteristics at 4:** "The outputs from the ***external sensor 1 and the internal sensor* 2** are used as fuzzy logic input values that are input to the fuzzy logic part 3. The fuzzy logic part 3 determines comprehensive risk based on reasoning utilizing vague empirical knowledge through the input of the internal measured data and the external measured data. ***The fuzzy memory 4 stores risk evaluation values*** determined when fuzzy logic has been carried out in advance offline. The ***premium calculation*** part 6 performs temporal ***integration*** and computation of risk evaluation values, and thereby ***calculates insurance premiums***. . ." *A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
monitoring a plurality of the data elements	**Kosaka discloses monitoring a plurality of data elements at 7:** "[S]tates in the operator or moving body used as the subject of risk evaluation which contribute to risk are respectively detected by the doppler radar main unit 30, the speed detector 38, the main engine rotation rate detector 43, and the control operation detection part 44."
representative of an operating state of a vehicle or an action of the operator during a selected time period; and,	**Kosaka discloses monitoring an operating state of the vehicle at 3:** "[T]he risk contributing state detection means has a relative speed detection means and integration means thereof that ***detects speed relative to a preceding moving body*** and a means for detecting the reflected wave level from the preceding moving body." **Kosaka discloses monitoring in real time at 3:** "[T]he ***risk contributing state detection means*** and the risk evaluation means ***operate in real time***." *Monitoring data in real-time (e.g. continuously) explicitly*

Claim Element	Kosaka in View of Black Magic
	teaches monitoring data for a selected (current) time period.
recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle	**Kosaka discloses recording data elements relative to determining a cost of insurance for the vehicle at 4:** "The fuzzy logic part 3 determines comprehensive risk based on reasoning utilizing vague empirical knowledge through the input of the internal measured data and the external measured data. ***The fuzzy memory 4 stores risk evaluation values*** determined when fuzzy logic has been carried out in advance offline. The ***premium calculation*** part 6 performs temporal ***integration*** and computation of risk evaluation values, and thereby ***calculates insurance premiums***. . ." *A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.* **Kosaka discloses that the system is activated when the detected speed exceeds a set value at 7:** "The output V_0 of this speed detector 38 is conducted to the aforementioned signal preprocessing unit 37 and is also conducted to the system activation control part 39. This system activation control part keeps the system in an operating state when the "self" speed V_0 ***exceeds a set value***." *The system in Kosaka, which evaluates the monitored data, records the evaluated risk, and determines a cost of insurance, is activated when the detected speed exceeds a set value. Therefore, "selected" data is recorded once the system determines that it is relevant (e.g., speed exceeding set value).*
during the selected time period	**Kosaka discloses determining a cost of insurance during the selected time period 2:** "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states*** that lead to risk in the insurance customer." **Kosaka discloses determining a cost of insurance during the selected time period in real time at 7:** "The risk evaluation unit 42 then performs real-time evaluation of the degree of risk during operation from the state signals of the automobile [] using a signal processing process including fuzzy logic. . . . [A] monetary amount file part 46 erases, from the prepayment money balance, the insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42. . . . In addition, in this example of embodiment, an insurance premium determination system is used in addition to risk evaluation, which ***allows risk evaluations that change from hour to hour during travel to be reflected in the insurance premium***." *Kosaka therefore teaches monitoring driver behavior during*

Claim Element	Kosaka in View of Black Magic
	a particular time period and using that information to assess an insurance premium for the same time period in "real time."
said ones including, a time and location of vehicle operation	**Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses recording *time* of vehicle operation at 1:** "The black box is a computerised unit installed near the dashboard of a vehicle. . . . The unit records information such as driving speed, ***time***, and distance travelled and fuel consumption." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses recording time and *location* of vehicle operation at 2:** "GPS technology has wider implications for the insurance industry, as it can produce all the data a black box can and record the vehicle's ***location***. The information could be used to accurately rate premiums according to styles of driving and locality of use."
and a corresponding log of vehicle speed for the time and location.	**Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses that recorded data includes *speed* and *time* of vehicle operation at 1:** "The black box is a computerised unit installed near the dashboard of a vehicle. . . . The unit records information such as driving ***speed, time***, and distance travelled and fuel consumption." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses that recorded data includes speed, time and *location* of vehicle operation at 2:** "GPS technology has wider implications for the insurance industry, as it can produce all the data a black box can and record the vehicle's ***location***." *Simultaneously recording the vehicle speed, time and location explicitly teaches, or at a minimum inherently discloses, recording a corresponding log of the speed for the time and location.*

(b) Independent Claim 2

71. An overview of the reasons for rejection of claim 2 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

72. Claim 2 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis. For the sake of comparison, independent claim 1 is also provided below. It is readily seen that various elements are essentially identical to corresponding elements in method claim 1.

	Claim 1		**Claim 2**
[1.1]	A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising,	[2.1]	A database comprising
[1.2]	monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,	[2.2]	data elements representative of operator or vehicle driving characteristics for a selected time period
[1.3]	recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period,		
[1.4]	said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.	[2.3]	including a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location,
		[2.4]	the database then being used to determine an insurance charge for the vehicle operation for said selected time period.

73. Accordingly, the analysis for elements [2.1], [2.2], and [2.3] is the same as that provided above for elements [1.1], [1.1]/[1.2], and [1.4], respectively. Element [2.4] is a new element not appearing in claim 1. Accordingly, [2.4] will be addressed in this introduction.

74. Element [2.4] of claim 2 recites that "*the database then being used to determine an insurance charge for the vehicle operation for said selected time period.*" Kosaka

teaches determining an insurance charge for the vehicle operation using monitored data that is stored, disclosing that the "fuzzy logic" risk evaluation unit continuously computes an assessment of risk – the "risk evaluation values" – using the monitored data, and stores these risk evaluation values in "fuzzy memory." Ex. C at 4. A "premium calculation" unit then performs "temporal integration" using the risk evaluation values, and "calculates insurance premiums." *Id.* A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

75. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose each element of claim 2. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
2. A database comprising	**To the extent this preamble is considered a limitation to the claim, Kosaka discloses monitoring, storing and manipulating data at 4**: "The outputs from the external sensor 1 and the internal sensor 2 are used as fuzzy logic input values that are input to the fuzzy logic part 3. The fuzzy logic part 3 determines comprehensive risk based on reasoning utilizing vague empirical knowledge through the input of the internal measured data and the external measured data. ***The fuzzy memory 4 stores risk evaluation values*** determined when fuzzy logic has been carried out in advance offline." *A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
data elements representative of operator or vehicle driving characteristics for a selected time period including	**Kosaka discloses monitoring an operating state of the vehicle at 3:** "[T]he risk contributing state detection means has a relative speed detection means and integration means thereof that ***detects speed relative to a preceding moving body*** and a means for detecting the reflected wave level from the preceding moving body." **Kosaka discloses monitoring and evaluating risk in real time at 3:**

Claim Element	Kosaka in View of Black Magic
	"[T]he ***risk contributing state detection means*** and the risk evaluation means ***operate in real time***." *Monitoring data in real-time (e.g. continuously) explicitly teaches monitoring data for a selected (current) time period.*
a time and location of vehicle operation and	**Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses recording *time* of vehicle operation at 1:** "The black box is a computerised unit installed near the dashboard of a vehicle. . . . The unit records information such as driving speed, ***time***, and distance travelled and fuel consumption." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses recording time and *location* of vehicle operation at 2:** "GPS technology has wider implications for the insurance industry, as it can produce all the data a black box can and record the vehicle's ***location***."
a corresponding log of vehicle speed for the time and location,	**Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses that recorded data includes *speed* and *time* of vehicle operation at 1:** "The black box is a computerised unit installed near the dashboard of a vehicle. . . . The unit records information such as driving speed, ***time***, and distance travelled and fuel consumption." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses that recorded data includes time and *location* of vehicle operation at 2:** "GPS technology has wider implications for the insurance industry, as it can produce all the data a black box can and record the vehicle's ***location***." *Simultaneously recording the vehicle speed, time and location explicitly teaches, or at a minimum inherently discloses, recording a corresponding log of the speed for the time and location.*
the database then being used to determine an insurance charge for the vehicle operation	**Kosaka discloses that stored data is used to determine an insurance charge at 4:** "The fuzzy memory 4 stores risk evaluation values determined when fuzzy logic has been carried out in advance offline. The premium calculation part 6 performs temporal integration and computation of risk evaluation values, and ***thereby calculates insurance premiums*** . . ." *A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*

Claim Element	Kosaka in View of Black Magic
for said selected time period.	**Kosaka discloses determining a cost of insurance during the selected time period 2:** "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states*** that lead to risk in the insurance customer." **Kosaka discloses determining a cost of insurance during the selected time period in real time at 7:** "The risk evaluation unit 42 then performs real-time evaluation of the degree of risk during operation from the state signals of the automobile [] using a signal processing process including fuzzy logic. . . . [A] monetary amount file part 46 erases, from the prepayment money balance, the insurance premium change corresponding to the risk evaluation value output from the risk evaluation unit 42. . . . In addition, in this example of embodiment, an insurance premium determination system is used in addition to risk evaluation, which ***allows risk evaluations that change from hour to hour during travel to be reflected in the insurance premium***." *Kosaka therefore teaches monitoring driver behavior during a particular time period and using that information to assess an insurance premium for the same time period in "real time."*

(c) Dependent Claim 3

76. An overview of the reasons for rejection of claim 3 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

77. Dependent claim 3 recites, "*The database as defined in claim 2 wherein the data elements comprise raw data elements, derived data elements and calculated data elements*." As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose the database as defined in claim 2.

78. Kosaka discloses monitoring raw data from sensors. For example, the "doppler main body" detects the "ground speed" of the automobile, by means of, *e.g.*, "coupling

part 32 . . .constituted by a directional antenna for . . . reception and a waveguide tube-type coupler," as well as receiving part 33 that "carries out homodyne wave detection." Ex. C at 6 (emphasis added). Kosaka also discloses deriving data elements. For example, the "risk evaluation unit continually evaluates risk" and derives a "risk evaluation value." *Id.* at 7. Finally, Kosaka discloses calculating data elements. For example, an "integrator" integrates the "signal E(x) representing the relative speed of the moving body and calculates the approximate distance from the relative speed." *Id.* at 8. A person of ordinary skill in the art would have understood that Kosaka teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

79. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose each element of claim 3. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
3. The database as defined in claim **2** wherein the data elements comprise	**As discussed in the claim chart above, the combination of Kosaka and Black Magic discloses database as defined in claim 2.**
raw data elements,	**Kosaka discloses monitoring raw data from sensors at 6:** "This doppler main body 30 has a . . . radiation and coupling part 32, and a receiver 33. . . . When the ultra-short-wave is to be used, the radiation and coupling part 32, for example, is constituted by a ***directional antenna for . . . reception and a waveguide tube-type coupler***. . . . Moreover, the receiving part 33 carries out homodyne wave detection . . .." "The doppler component 36 obtained as the wave detection, specifically, f_0 and f_x are output from the aforementioned doppler main body 30. f_0 corresponds to the ground speed of the automobile (boat) reflected from a non-moving structure, and f_x corresponds to the reflection from the frontward moving body."
derived data elements and	**Kosaka discloses deriving data elements (e.g., the evaluated values of risk) at 7:** "The risk evaluation unit 42 continually evaluates risk using fuzzy logic on fuzzy input values which are input as signals that express these risk contributing states. When the risk value exceeds a set value, a warning is sent by a warning device 45 to the operator."

Claim Element	Kosaka in View of Black Magic
calculated data elements.	**Kosaka discloses calculating data elements at 8:** "This integrator 60 integrates the signal E(x) representing the relative speed of the moving body and calculates the approximate distance from the relative speed."

(d) Dependent Claim 11

80. An overview of the reasons for rejection of claim 11 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

81. Dependent claim 11 recites that "*The method according to claim 10, further comprising the steps of: using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted insurance cost.*" As discussed above, *supra* at Section III.A(4)(f), Kosaka discloses the method according to claim 10.

82. Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, teaches recording location and time of vehicle using "GPS technology" which can record "all the data a black box can," including time, as well as "the vehicle's location." Ex. D at 2. Black Magic also teaches comparing the recorded data to safety standards by disclosing that "fleet manager" can then use the recorded information to "analyze the performance of drivers in terms of exceeding the maximum speeds . . . ." *Id.* A person of ordinary skill in the art would have recognized that comparing recorded speeds to "maximum speeds" teaches comparing data to safety values. Black Magic also teaches using location and time data to generate an insurance cost by disclosing that the recorded information "could be used to accurately rate premiums according to styles of driving and locality of use." *Id.* at 2.

83. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose each element of claim 11. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
11. The method according to claim 10, further comprising the steps of:	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 10.**
using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted insurance cost.	**Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses using time as a data element at 1:** "The black box is a computerised unit installed near the dashboard of a vehicle. . . . The unit records information such as driving speed, ***time***, and distance travelled and fuel consumption." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses using time and location to generate adjusted insurance cost at 2:** "GPS technology has wider implications for the insurance industry, as it can produce all the data a black box can and record the vehicle's ***location***. The information could be used to accurately rate premiums according to styles of driving and locality of use." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses comparing data elements to safety standard or actuarial standard values at 1:** "The fleet manager can then use the information to assess operating efficiency and to analyze the performance of drivers in terms of ***exceeding maximum speeds, engine idling time and harsh deceleration***." *Comparing recorded speeds to "maximum speeds" teaches comparing data to safety values.*

(e) Dependent Claim 12

84. An overview of the reasons for rejection of claim 12 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

85. Dependent claim 12 recites that "*The method according to claim 11 wherein: the adjusted insurance cost can be for a prospective or retrospective basis.*" As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose the method according to claim 11.

86. Kosaka teaches that the adjusted insurance cost can be for a retrospective basis by disclosing that the insurance premium determined is for the period monitored. The insurance premium determination operates in "real time." Ex. C at 3. The risk evaluation unit performs "real-time" evaluation of the degree of risk and a "monetary amount file" and deducts the "insurance premium change" from a "prepayment balance." *Id.* at 7. As a result, "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk." *Id.* at 2.

87. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose each element of claim 12. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
12. The method according to claim 11 wherein:	**As discussed in the claim chart above, the combination of Kosaka and Black Magic discloses the method as defined in claim 11.**
the adjusted insurance cost can be for a prospective or retrospective basis.	**Kosaka discloses that the adjusted insurance cost can be for a retrospective basis at 2:** "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes*** through the detection of states that lead to risk in the insurance customer."

(f) Dependent Claim 14

88. An overview of the reasons for rejection of claim 14 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

89. Dependent claim 14 recites that "*The method according to claim 13, further comprising the steps of: using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted underwriting cost.*" As discussed above, *supra* at Section III.A(4)(g), Kosaka discloses the method according to claim 13.

90. Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, teaches recording location and time of vehicle using "GPS technology" which can record "all the data a black box can," including time, as well as "the vehicle's location." Ex. D at 2. Black Magic also teaches comparing the recorded data to safety standards by disclosing that "fleet manager" can then use the recorded information to "analyze the performance of drivers in terms of exceeding the maximum speeds . . . ." *Id.* A person of ordinary skill in the art would have understood that comparing recorded speeds to "maximum speeds" teaches comparing data to safety values. Black Magic also teaches using location and time data to generate an insurance cost by disclosing that the recorded information "could be used to accurately rate premiums according to styles of driving and locality of use." *Id.* at 2. A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

91. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together

disclose each element of claim 14. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
14. The method according to claim 13, further comprising the steps of:	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 13.**
using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted underwriting cost.	**Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses using time as a data element at 1:** "The black box is a computerised unit installed near the dashboard of a vehicle. . . . The unit records information such as driving speed, ***time***, and distance travelled and fuel consumption." **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses using time and location to generate adjusted insurance cost at 2**: "GPS technology has wider implications for the insurance industry, as it can produce all the data a black box can and record the vehicle's ***location***. The information could be used to accurately rate premiums according to styles of driving and locality of use." *A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.* **Black Magic, also related to vehicle monitoring systems which are described as being useful for insurance price calculations, discloses comparing data elements to safety standards at 1:** "The fleet manager can then use the information to assess operating efficiency and to analyze the performance of drivers in terms of ***exceeding maximum speeds, engine idling time and harsh deceleration***." *Comparing recorded speeds to "maximum speeds" teaches comparing data to safety values.*

(g) Dependent Claim 15

92. An overview of the reasons for rejection of claim 15 in light of Kosaka in view of Black Magic is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

93. Dependent claim 15 recites that "*The method according to claim 14 wherein: the adjusted underwriting cost can be for a prospective or retrospective basis.*" As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose the method according to claim 14.

94. Kosaka teaches that the adjusted insurance cost can be for a retrospective basis by disclosing that the insurance premium determined is for the monitored period. The insurance premium determination operates in "real time." Ex. C at 3. The risk evaluation unit performs "real-time" evaluation of the degree of risk and a "monetary amount file" deducts from a "prepayment balance" the "insurance premium change." *Id.* at 7. As a result, "insurance premiums can be increased or decreased by continually determining insurance premium changes through the detection of states that lead to risk." *Id.* at 2. A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

95. As discussed above, *supra* at Section III.A(5), one of ordinary skill in the art at the time would have been motivated to combine Kosaka and Black Magic, which together disclose each element of claim 15. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Kosaka in View of Black Magic
15. The method according to claim 14 wherein:	**As discussed in the claim chart above, the combination of Kosaka and Black Magic discloses the method as defined in claim 14.**
the adjusted underwriting cost can be for a prospective or retrospective basis.	**Kosaka discloses that the adjusted insurance cost can be for a retrospective basis at 2:** "[A]n objective of the invention is to provide an insurance premium determination device whereby ***insurance premiums can be increased or decreased by continually determining insurance premium changes*** through the detection of states that lead to risk in the insurance customer."

Claim Element	Kosaka in View of Black Magic
	A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

7. The Admitted Prior Art

96. An "admission by the patent owner of record in the file or in a court record may be utilized in combination with a patent or printed publication" for consideration for an *ex parte* reexamination under 35 U.S.C. 303. MPEP § 2217. Furthermore:

> The admission can reside in the patent file (made of record during the prosecution of the patent application) or may be presented during the pendency of the reexamination proceeding or in litigation. Admissions by the patent owner as to any matter affecting patentability may be utilized to determine the scope and content of the prior art **in conjunction with patents and printed publications** in a prior art rejection, whether such admissions result from patents or printed publications or from some other source. An admission relating to *any* prior art established in the record or in court may be used by the examiner in combination with patents or printed publications in a reexamination proceeding. The admission must stand on its own. Information supplementing or further defining the admission would be improper. *Id.*

97. During prosecution of the '970 patent, the Applicants characterized the systems described in U.S. Patent Nos. 5,499,182 and 5,430,432 ("Ousbourne" and "Camhi," respectively) as comprising "a more sophisticated scheme of collecting historical information in a conventional insurance scheme by generating a prospective rate based upon then known operating results and parameters of the vehicle operator." Ex. B, Amend. D at 5. Thus, the Applicants admitted that the prior art disclosed using vehicle and operator data to compute an insurance rate for a future time period.

8. Claim 9 Should be Rejected under 35 U.S.C. 103(a) as Obvious in Light of Kosaka in View of the Admitted Prior Art

98. Claim 9 of the '970 patent is rendered obvious by Kosaka in view of the Admitted Prior Art.

99. Dependent claim 9 recites that "[t]*he method as defined in claim 6 wherein the output data value is additionally used for computing an insurance rating for the vehicle for a future data collection period.*" As described above in Section III.A(4)(C), Kosaka teaches all of the elements of claim 6.

100. The Admitted Prior Art reveals that it was well known to utilize vehicle and operator data to assess insurance rates prospectively. *Id.* at 5-6. Similarly, Kosaka discloses utilizing vehicle and operator data to assess insurance rates for the monitored time period. Thus, someone of skill in the art would have been motivated to combine Kosaka's teachings of using vehicle and operator data to assess insurance rates in the monitored period with the Admitted Prior Art's teaching of using similar data to assess insurance rates going forward to perform both assessments, thereby making additional use of this data for the common purpose they disclose. A combination of Kosaka and the Admitted Prior Art renders claim 9 obvious. The following claim chart demonstrates, in further detail, how each element of claim 9 is disclosed by the combination of Kosaka and the Admitted Prior Art.

Claim Element	Kosaka in View of the Admitted Prior Art
9. The method as defined in claim 6	**As discussed in the claim chart above, Kosaka discloses the method as defined in claim 6.**
wherein the output data value is additionally used for computing an insurance rating for the vehicle for a future data collection period.	**The Admitted Prior Art discloses a system similar to that of Kosaka and discloses using data to compute an insurance rate for a future collection period.** During prosecution of the '970 patent, the Applicants characterized the systems described in U.S. Patent Nos. 5,499,182 and 5,430,432 ("Ousbourne" and "Camhi," respectively) as comprising "a more sophisticated scheme of collecting historical information in a conventional insurance scheme by generating a prospective rate based upon then known operating results and parameters of the vehicle operator." Ex. B, Amend. D at 5. Thus, Applicants admitted that the prior art disclosed using vehicle and operator data to compute an insurance rate for a future time period.

B. Lemelson and Dorweiler

101. The application for the Lemelson patent was filed on February 18, 1994, and the patent issued on October 29, 1996. Because Lemelson is a patent issued on an application filed prior to the date of invention of the '970 patent (assumed to be January 29, 1996), it is prior art under 35 U.S.C. § 102(e). *See* MPEP § 706.02(f)(1) ("The 35 U.S.C. 102(e) date of a reference that did not result from, nor claimed the benefit of, an international application is its earliest effective U.S. filing date . . . .").

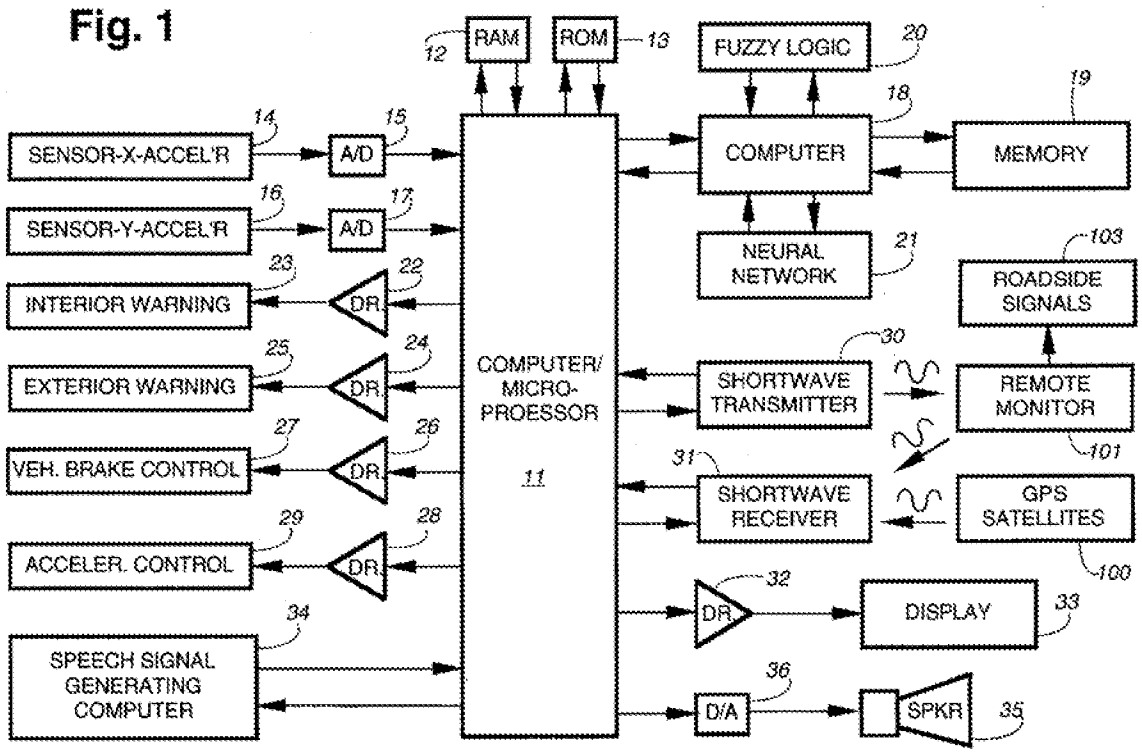
102. "Notes on Exposure and Premium Bases" by P. Dorweiler was published in 1930 as part of a book entitled "Proceedings of the Casualty Actuarial Society." Claims 1-8 and 10-15 of the '970 patent are rendered obvious by Lemelson in view of Dorweiler. Claim 9 of the '970 patent is rendered obvious by Lemelson in view of Dorweiler and the Admitted Prior Art.

1. Overview of Lemelson

103. The Lemelson patent is entitled "Motor Vehicle Performance Monitor and Method," and discloses a system and method for monitoring the performance of a motor vehicle. *See* Exh. E at Abstract. This is accomplished by monitoring certain "performance variables" associated with a vehicle, including its speed, direction and location. Ex. E at Col. 1: 15-18; 2: 41-50. These performance variables are then coded and stored with associated time and date information and may be selectively accessed. *Id.* at Col. 2: 51-64. Then, the performance variables are analyzed to create an "evaluation code" that is used to evaluate how the vehicle is being driven. *Id.* at Col. 3: 20-38.

104. The Lemelson patent also teaches communicating performance variables and evaluation codes to vehicle drivers and remote monitoring stations. *Id.* at Col. 2: 65-3:19. For example, "when an evaluation code is computed which indicates an erratic or otherwise

hazardous driving pattern or condition, the system is programmed to warn a driver of the vehicle by activating an interior warning device . . . ." *Id.* at Col. 3: 39-43. Similarly, an alert signal may be sent to a remote monitoring station when an erratic/hazardous evaluation code is computed. *Id.* at Col. 3: 51-58. This signal can include vehicle identification information and the vehicle's current global position. *Id.*



105. Figure 1 depicts the components of an exemplary system for "automatically monitoring the performance of a motor vehicle." *Id.* at Col. 2: 25-27. A "sensing module comprising acceleration sensors 14 and 16 sense the instantaneous acceleration of the vehicle." *Id.* at Col. 2: 41-43. From the acceleration data produced, "microprocessor 11 computes performance variables of the vehicle such as its location, speed, and direction of travel." *Id.* at Col. 2:49-50.

106. The performance variables are "continually stored in memory 20 as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code." *Id.* at Col. 3: 20-23. In addition, the system is programmed to "analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven." *Id.* at Col. 3: 23-28. The evaluation codes are "stored in select locations in memory along with associated time and date codes corresponding to the time interval being evaluated." *Id.* at Col. 3: 28-30. The evaluation codes may define a plurality of select driving patterns including, "erratic or otherwise hazardous driving," "deviation from a planned course of travel," or "relat[ing] to the vehicle itself." *Id.* at Col. 3: 31-36.

107. When an evaluation code is computed which indicates an "erratic or otherwise hazardous driving pattern or condition," (*i.e.*, trigger event, in the sense of the '970 patent) the system may "warn" the driver by activating an interior warning device 23, and may "transmit an alert signal to a remote monitor station" using the "shortwave transmitter 30" that enables "two-way communications between the system 10 and a remote computer station 101." *Id.* at Col. 3: 39-43; 50-53; Col. 2: 65-67. Such an alert signal may include " a vehicle identification code" and the "vehicle's global position." *Id.* at Col. 3: 54-56.

2. Overview of Dorweiler

108. The Dorweiler article describes several types of methods for determining "premium bases" for covering injuries to humans and "different media that might be used for measuring the exposure." Ex. F at 322. The article teaches that "the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." *Id.* at 321.

109. One of the premium bases disclosed in the article is manufacturers' and contractors' public liability insurance, which includes automobile public liability insurance. *Id.* at 337-39. This portion of the article identifies conditions that contribute to the hazard covered by auto insurance policies (*i.e.*, safety standards), including speed, mileage, day/night use of car and efficiency of a driver – age, experience, habits, impairments, etc. *Id.* at 337. The article notes that the efficiency of the driver is "one of the most important factors enumerated" and that the introduction of an "experience rating" is an approach that would recognize differences between drivers for insurance purposes. *Id.* In addition, the article notes that other "exposure media" for auto insurance could be conceived, including: (1) car-year; (2) mileage; (3) car-hour; (4) fuel-consumption; and (5) payroll. *Id.* Specifically, the article states that "devices" could be used to gather data – *e.g.*, mileage, fuel-consumption, car-hour, etc. – that could be used to assess exposure, *id.* at 338-39, which in turn is used to determine premiums. *Id.* at 338.

110. The Dorweiler article further discusses using gathered data from "devices" to assess exposure retrospectively in the measured period, *i.e.*, collecting data during one period that affects an insurance rate during the same period. While Dorweiller noted a dearth of practical devices available in 1930 for use in the proposed rating policy, as demonstrated below there are now numerous monitoring devices, such as the devices disclosed in Lemelson, that perform the role described and proposed by Dorweiler. *Id.* The article also states that when hazard media such as "mileage, car-hour, or fuel-consumption exposure" are used in "rate making," they would "require a final adjustment which would be determined retrospectively." *Id.* at 339.

3. Lemelson and Dorweiler

111. A combination of the Lemelson reference and the Dorweiler article teaches explicitly, inherently or implicitly, all the elements required by the independent claims.

This combination similarly discloses all the elements required by dependent claims 7-8 ("trigger events"), 10-11 (safety standards), and 12 (adjusted insurance cost applied retrospectively). *See infra* at Sections III.B(4)(g)-(k). Furthermore, the combination similarly discloses all of the elements required by dependent claims 13-15 ("underwriting costs") because Dorweiler teaches using an analysis of the data to assess actuarial and underwriting risks according to conventional, well-established insurance practices.

112. The similar purposes of the two references would have motivated a person of ordinary skill in the art to combine their teachings. Dorweiler discusses using gathered vehicle data from devices, in particular to determine insurance premiums retrospectively. Lemelson similarly discloses a method and system with devices for monitoring, evaluating, and transmitting vehicle and operator characteristics including risk-creating behavior. Dorweiller's observations regarding a need for practical monitoring devices in 1930 to implement the proposed methodology provides an explicit motivation for one of ordinary skill in the art to combine the teachings of Lemelson with Dorweiller, thereby providing a practical technical platform to fit the methodology proposed in Dorweiller.

113. Moreover, Dorweiler specifically proposes that "devices" that can monitor and record vehicle characteristics would be useful for determining insurance premiums, confirming that this concept was known in the art for many decades. Ex. F at 338. Thus, a person of ordinary skill in the art would have recognized that the vehicle insurance determination method disclosed in Dorweiler with its explicit teaching of such vehicle monitoring devices could be implemented or enhanced by employing the particular vehicle monitoring devices and system disclosed in Lemelson.

4. Claims 1-8, 10-15 Should be Rejected under 35 U.S.C. 103(a) as Obvious in Light of Lemelson in View of Dorweiler

(a) Independent Claim 1

114. An overview of the reasons for rejection of claim 1 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

115. Independent claim 1 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [1.1] *A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising,*
>
> [1.2] *monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,*
>
> [1.3] *recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period*
>
> [1.4] *said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.*

116. Element [1.1] of claim 1 is a preamble that describes "*A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising.*" Lemelson teaches storing "performance variables associated with a motor vehicle," which includes "the vehicle's speed, direction, and location." Ex. E at Col. 1:15-18. These variables are "monitored by an onboard computer system." *Id.* The "performance variables are continually stored in memory" and may be "selectively accessed." *Id.* at Col. 3:20-24. A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

117. Element [1.2] of claim 1 recites "*monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period.*" Lemelson teaches monitoring "performance variables associated with a motor vehicle" – which include "the vehicle's speed, direction, and location" – by "an onboard computer system." *Id.* at Col. 1:15-18. Lemelson further teaches that the "system is programmed to analyze the stored performance variables ***over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven . . . ." *Id.* at Col. 3:24-26 (emphasis added).

118. Element [1.3] of claim 1 recites "*recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period.*" Lemelson teaches recording data elements by disclosing that the "performance variables" and the "evaluation codes," which correspond to "an assessment as to how the vehicle is being driven," are "stored in select locations in memory along with associated time and date codes corresponding to the time interval being evaluated." *Id.* at Col. 3:20-35. These performance variables "may be selectively accessed according to such time and date code." *Id.* A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

119. Lemelson teaches recording selected data by disclosing that an "alert signal," which includes the "vehicle's global position," may be transmitted "to a remote monitor station when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving." *Id.* at Col. 3:50-57. A person of ordinary skill in the art would have

understood that generating and sending an "alert signal" explicitly teach, or at a minimum inherently disclose, that the signal is recorded, and further, this signal is only recorded when an evaluation code indicates that underlying data is relevant (*e.g.*, when an evaluation code corresponds to hazardous driving).

120. Dorweiler teaches that certain hazard-related information, including data monitored by the system disclosed in Lemelson, would be useful for determining a cost of insurance for the vehicle. *See* Ex. F at 321. For example, Dorweiler discloses that, in the case of vehicle insurance, driver "habits" and "speed" may be useful for determining insurance premiums. *Id.* at 337. Dorweiler further proposes using "devices" and "records" to monitor these hazard exposure media. *Id.* at 338. Finally, Dorweiler discloses that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339. Dorweiler and Lemelson's focus on similar data elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to insurance premiums.

121. Element [1.4] of claim 1 recites "*said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location*." Lemelson discloses that the "performance variables" monitored include "the vehicle's speed, direction, and location" and are "continually stored in memory as they are computed along with an associated time and date code." Ex. E at Col 1:17-18; Col. 3:21-22. A person of ordinary skill in the art would have understood that storing the speed with the location and time in memory explicitly teaches, or at a minimum inherently discloses, storing a corresponding log of the speed for the time and location.

122. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 1. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
1. A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Lemelson discloses storing data representative of operator or vehicle driving characteristics that may be selectively accessed at 1:15-18; 3:20-24:** "***Performance variables*** associated with a motor vehicle are *monitored* by an onboard computer system. Such performance variables include the vehicle's speed, direction, and location." "Performance variables are continually stored in memory as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code." *A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
monitoring a plurality of the data elements	**Lemelson discloses monitoring a plurality of data elements at 1:15-18:** "***Performance variables*** associated with a motor vehicle are ***monitored*** by an onboard computer system. Such performance variables include the vehicle's speed, direction, and location."
representative of an operating state of a vehicle or an action of the operator during a selected time period; and,	**Lemelson discloses that the data elements being monitored are representative of an operating state of a vehicle or action of the operator during a selected time period at 1:17-18; 3:24-26:** "Such performance variables include the vehicle's speed, direction, and location." "[T]he system is programmed to analyze the stored performance variables ***over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven."
recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle	**Lemelson discloses recording selected data elements into memory at 3:24-26; 3:28-35:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes are ***stored*** in select locations in memory along with associated time and date codes corresponding to the time interval being evaluated. Evaluation codes may ***define a plurality of select driving patterns including, for example, erratic or otherwise hazardous driving***. Other evaluation codes may correspond to other driving patterns such as deviation from a planned course of travel." **Lemelson discloses storing data that may be selectively**

Claim Element	Lemelson in View of Dorweiler
	accessed at 3:20-24: "Performance variables are continually stored in memory as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code." *A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.* **Lemelson discloses sending selected data when erratic or hazardous driving is detected at 3:50-57:** "The system may also be programmed to transmit an alert signal to a remote monitor station ***when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving***. Such an alert signal may . . . include a vehicle identification code . . . and the vehicle's global position as currently calculated. " *Generating and sending an "alert signal" explicitly teach, or at a minimum inherently disclose, that the signal is recorded, and further, this signal is only recorded when an evaluation code indicates that the underlying data is relevant (e.g. when an evaluation code corresponds to hazardous driving).* **Dorweiler proposes that hazard information, including certain data parameters monitored by the system in Lemelson (e.g., driver habits, speed), would be useful for determining a cost of insurance for the vehicle at 337-38 (discussing proposed use of "devices" and "records.")** **Dorweiler discloses that hazard media may be useful for determining a cost of insurance at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337:** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires making an adjustment to the cost of vehicle insurance retrospectively at 339:**

Claim Element	Lemelson in View of Dorweiler
	"The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."
during the selected time period	**Dorweiler proposes that hazard information, including certain data parameters monitored during a selected time period by the system in Lemelson (e.g., driver habits, speed), would be useful for determining a cost of insurance for the vehicle during that time period at 337.** **Dorweiler discloses that using certain hazard media requires making an adjustment to the cost of vehicle insurance retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."
said ones including, a time and location of vehicle operation	**Lemelson discloses monitoring the location of vehicle operation at 1:17-18:** "Such performance variables include the vehicle's speed, direction, and location." **Lemelson discloses storing the location of vehicle along with corresponding time at 3:21:** "Performance variables are continually stored in memory as they are computed along with an associated time and date code. . ."
and a corresponding log of vehicle speed for the time and location.	**Lemelson discloses monitoring the speed and location of vehicle operation at 1:17-18:** "Such performance variables include the vehicle's speed, direction, and location." **Lemelson discloses storing the speed, location and time in memory at 3:21-24:** "Performance variables are continually stored in memory as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code." *Storing the speed with the location and time in memory explicitly teaches, or at a minimum inherently discloses, storing a corresponding log of the speed for the time and location.*

(b) Independent Claim 2

123. An overview of the reasons for rejection of claim 2 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

124. Claim 2 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis. For the sake of comparison, independent claim 1 is also provided below. It is readily seen that various elements are essentially identical to corresponding elements in method claim 1.

	Claim 1		**Claim 2**
[1.1]	A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising,	[2.1]	A database comprising
[1.2]	monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,	[2.2]	data elements representative of operator or vehicle driving characteristics for a selected time period
[1.3]	recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period,		
[1.4]	said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.	[2.3]	including a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location,
		[2.4]	the database then being used to determine an insurance charge for the vehicle operation for said selected time period.

125. Accordingly, the analysis for elements [2.1], [2.2], and [2.3] is the same as that provided above for elements [1.1], [1.2]/[1.3], and [1.4], respectively. Element [2.4] is a new element not appearing in claim 1. Accordingly, [2.4] will be addressed in this introduction.

126. Element [2.4] of claim 2 recites that "*the database then being used to determine an insurance charge for the vehicle operation*." Lemelson discloses "performance variables," which include "the vehicle's speed, direction, and location," and "evaluation codes." Ex. E at Col. 3:20-35. These performance variables correspond to "an assessment as to how the vehicle is being driven" and are "stored in select locations in memory along with associated time and date codes corresponding to the time interval being evaluated." *Id.* In addition, they "may be selectively accessed according to such time and date code." *Id.* A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

127. Dorweiler proposes that certain hazard information monitored by devices, such as data monitored by the system devices disclosed in Lemelson, would be useful for determining a cost of insurance for the vehicle. *See* Ex. F at 321. For example, Dorweiler teaches using driver "habits" and "speed" for determining insurance premiums. *Id.* at 337. Dorweiler further discloses using "devices" and "records" to monitor these hazard exposure media. *Id.* at 338. Finally, Dorweiler teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339.

128. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together

disclose each element of claim 2. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
2. A database comprising	**To the extent this preamble is considered a limitation to the claim, Lemelson discloses storing data that may be selectively accessed at 3:20-24:** "Performance variables are continually stored in memory as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code." *A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
data elements representative of operator or vehicle driving characteristics for a selected time period including	**Lemelson discloses monitoring data elements representative of *vehicle* and operator driving characteristics for a selected time period at 1:15-18; 3:23-26; 3:31-39:** "Performance variables associated with a motor vehicle are monitored by an onboard computer system. Such performance variables include the vehicle's speed, direction, and location." "In addition, the system is programmed to ***analyze the stored performance variables over a period of time*** and compute an evaluation code ***corresponding to an assessment as to how the vehicle is being driven***. . . . Evaluation codes may define a plurality of select driving patterns including, for example, erratic or otherwise hazardous driving. Other evaluation codes may correspond to other driving patterns such as deviation from a planned course of travel. Still other evaluation codes may relate to the [] vehicle itself. . . ."
a time and location of vehicle operation and	**Lemelson discloses monitoring the *location* of vehicle operation at 1:17-18:** "Such performance variables include the vehicle's speed, direction, and ***location***." **Lemelson discloses storing the location of vehicle along with the corresponding *time* at 3:21:** "Performance variables are continually stored in memory as they are computed ***along with an associated time*** and date code. . ."
a corresponding log of vehicle speed for the time and location,	**Lemelson discloses monitoring the speed and location of vehicle operation at 1:17-18:** "Such performance variables include the vehicle's speed, direction, and location." **Lemelson discloses storing the speed, location and time in memory at 3:21-24:** "Performance variables are continually stored in memory as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code."

Claim Element	Lemelson in View of Dorweiler
	Storing the speed with the location and time in memory explicitly teaches, or at a minimum inherently discloses, storing a corresponding log of the speed for the time and location.
the database then being used to determine an insurance charge for the vehicle operation	**Lemelson discloses storing data that may be selectively accessed at 3:20-24:** "Performance variables are continually stored in memory as they are computed along with an associated time and date code, and may be selectively accessed according to such time and date code." *A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.* **Dorweiler proposes that hazard information, including certain data parameters monitored by the system in Lemelson (e.g., driver habits, speed), would be useful for determining an insurance charge for the vehicle at 337.** **Dorweiler discloses that hazard media may be useful for determining a cost of insurance at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337 :** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires making an adjustment to the cost of vehicle insurance retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***.'
for said selected time period.	**Dorweiler proposes that hazard information, including certain data parameters monitored during a selected time period by the system in Lemelson (e.g., driver habits, speed), would be useful for determining a insurance charge**

Claim Element	Lemelson in View of Dorweiler
	for the vehicle for that time period at 337. **Dorweiler discloses that using certain hazard media requires making an adjustment to the cost of vehicle insurance retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."

(c) Dependent Claim 3

129. An overview of the reasons for rejection of claim 3 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

130. Dependent claim 3 recites that "*The database as defined in claim 2 wherein the data elements comprise raw data elements, derived data elements and calculated data elements*." As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the database as defined in claim 2. Lemelson discloses monitoring raw data from sensors. For example, the "vehicle's instantaneous accelerations in at least two horizontal directions are continually sensed and stored . . ." Ex. E at Col. 1:18-20.

131. Lemelson also discloses deriving data elements. For example, the "system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven . . . ." *Id.* at 3:24-26.

132. Finally, Lemelson discloses calculating data elements. For example, using the "acceleration data" (raw data elements), a "microprocessor 11 computes performance

variables of the vehicle such as its location, speed, and direction of travel." *Id.* at Col. 2:41-50. A person of ordinary skill in the art would have understood that Lemelson teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.

133. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 3. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
3. The database as defined in claim **2** wherein the data elements comprise	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the database as defined in claim 2.**
raw data elements,	**Lemelson discloses monitoring raw data elements at 1:18-20:** "The ***vehicle's instantaneous accelerations*** in at least two horizontal directions are continually ***sensed and stored as coded signals*** in a computer memory by the onboard system."
derived data elements and	**Lemelson discloses deriving data elements at 3:24-26; 3:31-33:** "[T]he system is programmed to analyze the stored performance variables over a period of time and ***compute an evaluation code corresponding to an assessment as to how the vehicle is being driven***. . . Evaluation codes may ***define a plurality of select driving patterns including, for example, erratic or otherwise hazardous driving***. . ."
calculated data elements.	**Lemelson discloses calculating data elements at 2:41-50:** "A sensing module comprising acceleration sensors 14 and 16 sense the instantaneous acceleration of the vehicle along two separate axes in the horizontal plane and feed the acceleration data to the microprocessor . . . ***From the acceleration data thus produced, microprocessor 11 computes performance variables of the vehicle such as its location, speed, and direction of travel***."

(d) Independent Claim 4

134. An overview of the reasons for rejection of claim 4 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

135. Independent claim 4 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [4.1] *A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period, comprising, steps of:*
>
> [4.2] *generating an initial operator profile;*
>
> [4.3] *monitoring operator driving characteristics during the selected period;*
>
> [4.4] *and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.*

136. Element [4.1] of claim 4 is a preamble that describes "*A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period.*" To the extent this preamble is considered a limitation of the claim, Dorweiler discloses that driver "habits" and "speed" may be useful for determining insurance premiums. Ex. F at 337. Dorweiler further proposes using "devices" and "records" to monitor these hazard exposure media. *Id.* at 338. Finally, Dorweiler teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339.

137. Element [4.2] of claim 4 recites "*generating an initial operator profile*." Dorweiler discloses the use of "mileage, car-hour, or fuel-consumption exposure" in premium "rate making." Dorweiller teaches that these factors should be used to make "a final adjustment which would be determined retrospectively." Ex. F at 339. A person of ordinary skill in the art would have understood that making a "final ***adjustment***" to an insurance rating retrospectively explicitly teaches, or at minimum inherently discloses, generating a base cost of vehicle

insurance based on an initial operator profile. As an example, Dorweiller discloses that "car-year" is one suitable factor for prospective rating. *Id.*

138. Element [4.3] of claim 4 recites "*monitoring operator driving characteristics during the selected period.*" Lemelson teaches "performance variables associated with a motor vehicle," which include "the vehicle's speed, direction, and location." Ex. E at Col. 1:15-18. These variables are "monitored by an onboard computer system." *Id.* Lemelson further teaches that the "system is programmed to analyze the stored performance variables ***over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven . . . ." *Id.* at 3:24-26 (emphasis added).

139. Element [4.4] of claim 4 recites "*and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.*" Dorweiler proposes that certain hazard information, including data monitored by "devises," like those disclosed in Lemelson, would be useful for deciding a cost of insurance for the vehicle. *See* Ex. F at 321. For example, Dorweiler discloses that, in the case of vehicle insurance, driver "habits" and "speed" may be useful for determining insurance premiums. *Id.* at 337. Dorweiler further teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339.

140. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 4. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
4. A method of insuring a vehicle operator for a selected period based upon operator driving	**To the extent this preamble is considered a limitation to the claim, Dorweiler proposes that hazard information,**

Claim Element	Lemelson in View of Dorweiler
characteristics during the period, comprising, steps of:	**including certain data parameters monitored during a selected time period by the system in Lemelson (e.g., driver habits, speed), would be useful for deciding a cost of vehicle insurance for that time period.**
generating an initial operator profile;	**Dorweiler discusses adjusting an operator profile retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into rate making would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***." *Making a "final adjustment" retrospectively explicitly teaches, or at a minimum inherently discloses, generating an initial operator profile with initial insurance information, such as the "car-year" which measures the exposure prospectively*
monitoring operator driving characteristics during the selected period;	**Lemelson discloses monitoring operator driving characteristics during selected period at 1:15-18; 27-29:** "[P]erformance variables associated with a motor vehicle are ***monitored*** by an onboard computer system. Such performance variables include the vehicle's speed, direction, and location. . . The stored performance variables are analyzed ***over a period of time*** in order to evaluate how the vehicle is being driven. An evaluation code is computed which corresponds to an assessment of the current driving pattern. Such an assessment may indicate, for example, whether and how well the vehicle is maintaining a planned course of travel."
and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.	**Dorweiler proposes that hazard information, including certain data parameters monitored during a selected time period by the system in Lemelson (e.g., driver habits, speed), would be useful for deciding a cost of vehicle insurance for that time period at 337.** **Dorweiler discloses that hazard media may be useful for determining a cost of insurance at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337:** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car."

Claim Element	Lemelson in View of Dorweiler
	Dorweiler discloses that using certain hazard media requires making an adjustment to the cost of vehicle insurance retrospectively at 339: "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."

(e) Independent Claim 5

141. An overview of the reasons for rejection of claim 5 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

142. Independent claim 5 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [5.1] *A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising:*
>
> [5.2] *determining an initial insured profile and a base cost of vehicle insurance based on said insured profile;*
>
> [5.3] *monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during the selected period;*
>
> [5.4] *recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards;*
>
> [5.5] *consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost; and,*
>
> [5.6] *producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.*

143. Element [5.1] of claim 5 is a preamble that describes "*A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising.*" To the extent this preamble is considered a limitation of the claim, Lemelson teaches the use of "performance variables," which include "the vehicle's speed, direction, and location," and "evaluation codes." These variables correspond to "an assessment as to how the vehicle is being driven" and may be "***transmitted to the remote monitor station*** . . ." Ex. E at Col. 1:15-18; Col. 3:24-26; Col. 1:42-44 (emphasis added).

144. Element [5.2] of claim 5 recites "*determining an initial insured profile and a base cost of vehicle insurance based on said insured profile*." Dorweiler, which teaches a method of determining insurance premiums based on hazard information that can be monitored by "devices" similar to the data monitored by the system devices in Lemelson, discloses generating an initial operator profile and base cost of insurance that can be adjusted based on monitored risk exposure. Specifically, Dorweiler discloses the use of "mileage, car-hour, or fuel-consumption exposure" in premium "rate making." Dorweiller teaches that these factors should be used to make "a final adjustment which would be determined retrospectively." Ex. F at 339. A person of ordinary skill in the art would have understood that making a "final ***adjustment***" to an insurance rating retrospectively explicitly teaches, or at minimum inherently discloses, generating a base cost of vehicle insurance based on an initial operator profile. As an example, Dorweiller discloses that "car-year" is one suitable factor for prospective rating. *Id*.

145. Element [5.3] of claim 5 recites "*monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during the selected period*." Lemelson teaches using "performance variables associated with a motor vehicle," which include "the vehicle's speed, direction, and location." Ex. E at Col. 1:15-18. These variables are "monitored by an onboard computer system." *Id*. Lemelson further teaches that the "system is programmed to analyze the stored performance variables ***over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven . . . ." *Id.* at Col. 3:24-26 (emphasis added).

146. Element [5.4] of claim 5 recites "*recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards*." Lemelson teaches "stor[ing]" performance variables," which may "define a plurality of select driving patterns including . . . erratic or otherwise hazardous driving" and which are "stored in select locations in memory . . . ." *Id.* at Col. 3:20-35.

147. Lemelson teaches an "alert signal" (that includes the "vehicle's global position"), which may be transmitted "to a remote monitor station when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving." *Id.* at Col. 3:50-57. A person of ordinary skill in the art would have understood that generating and sending an "alert signal" explicitly teaches, or at a minimum inherently discloses, that the signal data (including global position) is recorded. Further, a person of ordinary skill would have understood that this alert signal is only recorded when an evaluation code indicates that underlying data is relevant because it has a preselected relationship to safety standards (*e.g.*, when an evaluation code corresponds to hazardous driving).

148. Element [5.5] of claim 5 recites "*consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost*." Dorweiler, which teaches a method of determining insurance premiums based on selected hazard information that can be monitored by "devices," similar to the data monitored by the system devices in Lemelson, teaches consolidating selected data for identifying a surcharge or discount. For example, Dorweiler discloses that, in the case of vehicle insurance, a number of selected factors, such as driver "age, experience, habits, impairments," may be consolidated as the hazard medium, such as "efficiency of driver." Ex. F at 337. Dorweiler further discloses that using certain hazard media in premium "rate making" requires making "a final adjustment." *Id.* at 339. A person of ordinary skill in the art would have understood that determining a rate "adjustment" involves determining a surcharge or discount to be applied to the base cost. Dorweiler and Lemelson's focus on similar data elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to identify a surcharge or discount.

149. Element [5.6] of claim 5 recites "*producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount*." Dorweiler, which teaches a method of determining insurance premiums based on hazard information that can be monitored by "devices" similar to the data monitored by the system devices in Lemelson, teaches producing a final cost of vehicle insurance for the selected period from the base cost and surcharge or discount. Dorweiler discloses that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339. A person of ordinary skill in the art would have understood that determining an insurance rate based on a "final adjustment" explicitly teaches producing a final cost of vehicle insurance from the base cost and surcharge or discount. Dorweiler and Lemelson's focus on similar data

elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to produce a final cost of insurance.

150. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 5. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
5. A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Lemelson discloses communicating data representative of operator and vehicle driving characteristics at 1:42-44:** "Performance variables and evaluation codes may be ***transmitted to the remote monitor station*** periodically and/or in response to a radioed request received by the onboard system from the remote monitor station." **To the extent this preamble is considered a limitation to the claim, Lemelson discloses using safety standards as the preset values at 3:24-26; 3:31-36:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may define a plurality of select ***driving patterns*** including, for example, ***erratic or otherwise hazardous driving***. Other evaluation codes may correspond to other driving patterns such as ***deviation from a planned course of travel***."
determining an initial insured profile and a base cost of vehicle insurance based on said insured profile;	**Dorweiler discusses adjusting an insured profile and a base cost of vehicle insurance retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into rate making would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***." *Making a "final adjustment" retrospectively explicitly teaches, or at a minimum inherently discloses, generating an initial operator profile with initial insurance information, such as the "car-year" which measures the exposure prospectively, and a base cost of vehicle insurance, which the adjustment is based on.*
monitoring a plurality of data elements	**Lemelson discloses monitoring a plurality of data elements at 1:15-18:** "Performance variables associated with a motor vehicle are ***monitored*** by an onboard computer system. "
representative of an operating state of a vehicle	**Lemelson discloses monitoring data elements**

Claim Element	Lemelson in View of Dorweiler
or an action of the operator during the selected period;	**representative of an operating state of the vehicle or action of the operation during selected period at 1:17-18; 1:27-29:** "Such performance variables include the vehicle's speed, direction, and location. . . The stored performance variables are analyzed ***over a period of time*** in order to evaluate how the vehicle is being driven. An evaluation code is computed which corresponds to an assessment of the current driving pattern. "
recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards;	**Lemelson discloses recording select data elements into memory at 3:24-26; 3:28-35:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes are ***stored*** in select locations in memory along with associated time and date codes corresponding to the time interval being evaluated. Evaluation codes may ***define a plurality of select driving patterns including, for example, erratic or otherwise hazardous driving***. Other evaluation codes may correspond to other driving patterns such as deviation from a planned course of travel. " **Lemelson discloses sending select data when erratic or hazardous driving is detected at 3:50-57:** "The system may also be programmed to transmit an alert signal to a remote monitor station ***when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving***. Such an alert signal may . . . include a vehicle identification code . . . and the vehicle's global position as currently calculated." *Generating and sending an "alert signal" explicitly teaches, or at a minimum inherently discloses, that the signal data (including global position) is recorded, and further, that the "alert signal" is only recorded when an evaluation code indicates that underlying data is relevant because it has a preselected relationship to safety standards (e.g., when an evaluation code corresponds to hazardous driving).*
consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost; and,	**Dorweiler proposes that hazard information, including certain data parameters monitored by the system in Lemelson (e.g., driver habits, speed), would be useful for identifying an adjustment to be applied to the base cost at 337.** **Dorweiler discloses that hazard media may be useful for determining a cost of insurance at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be consolidated as the hazard media (e.g., driver efficiency, which includes driver habits)**

Claim Element	Lemelson in View of Dorweiler
	at 337: "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. ***Efficiency*** of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires identifying an adjustment to be applied to the cost of vehicle insurance retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."
producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.	**Dorweiler proposes that hazard information, including certain data parameters monitored during a selected period by the system in Lemelson (e.g., driver habits, speed), would be useful for producing a final cost of insurance for that period at 337.** **Dorweiler discloses that hazard media may be useful for determining a cost of insurance at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337 :** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires making an adjustment to the cost of vehicle insurance retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."

Claim Element	Lemelson in View of Dorweiler
	A person of ordinary skill in the art would have understood that determining an insurance rate based on a "final adjustment" explicitly teaches producing a final cost of vehicle insurance from the base cost and surcharge or discount.

(f) Independent Claim 6

151. An overview of the reasons for rejection of claim 6 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

152. Independent claim 6 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [6.1] *A method of monitoring a human controlled power source driven vehicle, the method comprising:*
>
> [6.2] *extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;*
>
> [6.3] *analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements; and,*
>
> [6.4] *correlating the group data values to preset values in a second memory and generating an output data value based on the correlation wherein the output data value is used to compute an insurance rating for the vehicle FOR the data collection period.*

153. Element [6.1] of claim 6 is a preamble that describes "*A method of monitoring a human controlled power source driven vehicle, the method comprising.*" To the extent this preamble is considered a limitation of the claim, Lemelson discloses "a method of monitoring the performance and movements of a motor vehicle," Ex. E at Col. 5:7-8, controlled by a human "driver." *Id.* at Col. 3:50-57.

154. Element [6.2] of claim 6 recites "*extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period.*" Lemelson teaches extracting data elements from sensors by disclosing that data is "fed to the system by various instruments for sensing physical variables." *Id.* at Col. 3:35-39. Lemelson further teaches that the extracted data is representative of an operating state of the vehicle and of a human's action by disclosing that a "sensing module . . . sense[s] the instantaneous acceleration of the vehicle." *Id.* at Col. 2:41-43. Lemelson further teaches extracting data during a data collection period by disclosing that the "system is programmed to analyze the stored performance variables ***over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven." *Id.* at Col. 3:24-26 (emphasis added).

155. Element [6.3] of claim 6 recites "*analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements.*" Lemelson teaches analyzing, grouping, and storing data elements as group data values in memory, disclosing "microprocessor 11[, which] computes performance variables of the vehicle such as its location, speed, and direction of travel" based on extracted "acceleration data." *Id.* at Col. 2:47-52. These data elements are continually stored in memory as they are computed along with an associated time and date code. *Id.* at Col. 1:17-18; Col. 3:21-22. Lemelson further discloses that the performance variables are "stored in select locations of memory." *Id.* A person of ordinary skill in the art would have understood that storing the performance variables in "select" locations of memory explicitly teaches, or at a minimum inherently discloses, storing the variables in a "first" memory or region of memory.

156. Element [6.4] of claim 6 recites "*correlating the group data values to preset values in a second memory and generating an output data value based on the correlation wherein the output data value is used to compute an insurance rating for the vehicle FOR the data collection period.*" Lemelson teaches correlating the group data values to preset values by disclosing that "evaluation codes may define a plurality of select driving patterns," including "erratic or otherwise hazardous driving" or "deviation from a planned course of travel." *Id.* at 3:31-33. A person of ordinary skill would have understood Lemelson's disclosure to teach that preset driving patterns are stored in a second memory or region of memory separate from group data values in a first memory or region of memory (see element [6.3]) so they may be compared with one another.

157. Dorweiler, which teaches a method of determining insurance premiums based on hazard information that can be monitored by "devices" similar to the data monitored by the system devices in Lemelson, teaches producing a final cost of vehicle insurance for the selected period. Dorweiler discloses that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." Ex. F at 339. Dorweiler and Lemelson's focus on similar data elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to produce a final cost of insurance.

158. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 6. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
6. A method of monitoring a human controlled power source driven vehicle, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Lemelson discloses a method of monitoring a human controlled power source driven vehicle at 5:7-8:** "A method of monitoring the performance and movements of a

Claim Element	Lemelson in View of Dorweiler
	motor vehicle . . . "
extracting one or more data elements from at least one sensor	**Lemelson discloses extracting data from sensors at 2:41-43:** "A sensing module comprising acceleration sensors 14 and 16 sense the instantaneous acceleration of the vehicle along two separate axes in the horizontal plane and feed the acceleration data to the microprocessor." **Lemelson discloses extracting data from sensors at 3:35-39:** "Still other evaluation codes may relate to the [] vehicle itself and are computed with ***data fed to the system by various instruments for sensing physical variables*** indicating the condition of the vehicle."
wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;	**Lemelson discloses extracting data representative of an operating state of the vehicle and of a human's action during a data collection period at 2:41-43; 3:24-26:** "A sensing module comprising acceleration sensors 14 and 16 sense the ***instantaneous acceleration of the vehicle*** along two separate axes in the horizontal plane . . ." "[T]he system is programmed to analyze the stored performance variables ***over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven."
analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements; and,	**Lemelson discloses analyzing, grouping, and storing data elements as group data values at 2:47-52. 3:20-24:** "From the acceleration data [] produced, microprocessor 11 computes performance variables of the vehicle such as its location, speed, and direction of travel. Coded representations of the performance variables are stored in select locations of memory 12. . ." "Performance variables are continually stored in memory as they are computed along with an associated time and date code." *Storing the performance variables in "select" locations of memory explicitly teaches, or at a minimum inherently discloses, storing the variables in a "first" memory or region of memory.*
correlating the group data values to preset values in a second memory and	**Lemelson discloses correlating the group data values to preset values at 3:31-33:** "Evaluation codes may define a plurality of select driving patterns including, for example, ***erratic or otherwise hazardous driving***. Other evaluation codes may ***correspond*** to other driving patterns such as ***deviation from a planned course of travel***." *A person of ordinary skill would have understood Lemelson's disclosure to teach that preset driving patterns are stored in a second memory or region of memory separate from group data values in a first memory or region of memory so they may be compared with one another.*
generating an output data value based on the correlation	**Lemelson discloses generating an output data value based on correlation at 1:29-31:** "An evaluation code is computed which ***corresponds to an assessment of the current driving pattern***."

Claim Element	Lemelson in View of Dorweiler
wherein the output data value is used to compute an insurance rating for the vehicle	**Dorweiler proposes that hazard information, including certain data parameters monitored by the system in Lemelson (e.g., driver habits, speed), would be useful for computing an insurance rating for the vehicle at 337.** **Dorweiler discloses that hazard media may be useful for determining insurance premiums at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337 :** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires making an adjustment to the insurance rate retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."
FOR the data collection period	**Dorweiler proposes that hazard information, including certain data parameters monitored during a selected time period by the system in Lemelson (e.g., driver habits, speed), would be useful for computing an insurance rating for the vehicle for that time period at 337.** **Dorweiler discloses that using certain hazard media requires making an adjustment to the insurance rate retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."

(g) Dependent Claim 7

159. An overview of the reasons for rejection of claim 7 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

160. Dependent claim 7 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [7.1] "*The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,*
>
> [7.2] *storing and transmitting a signal corresponding to the determined triggering event to a receiving system.*"

161. Element [7.1] of claim 7 recites that "[t]*he method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory.*" As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 6.

162. Lemelson teaches a system that is programmed to "compute an evaluation code corresponding to an assessment as to how the vehicle is being driven," and that the "evaluation codes may define a plurality of select driving patterns," including "erratic or otherwise hazardous driving," and "deviation from a planned course of travel." Ex. E at Col. 3:24-26; Col. 3:31-36. Lemelson further teaches correlating data to triggering events if the determination is positive by disclosing that "when an evaluation code is computed which

indicates an erratic or otherwise hazardous driving pattern or condition," the system may "warn" the driver, "transmit an alert signal to a remote monitor station," "prevent the vehicle from being driven at an unsafe speed," or "disable the vehicle from being driven." *Id.* at Col. 3:39-44; Col. 3:50-54. A person of ordinary skill in the art would have understood that determining whether to "warn the driver," "transmit an alert signal to a remote monitor station," "prevent the vehicle from being driven at an unsafe speed" or "disable the vehicle from being driven" based on "hazardous driving" explicitly teaches, or at a minimum inherently discloses, correlating the data elements to multiple types of predetermined trigger events (*e.g.,* hazardous driving events merely requiring a warning versus hazardous driving events requiring disabling the vehicle). Furthermore, a person of ordinary skill would have understood this disclosure to teach that these types of predetermined trigger events are stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory (see element [6.3]) and preset driving patterns stored in the second memory or region of memory (see element [6.4]) so that they can be compared with each other.

163. Element [7.2] of claim 7 recites "*storing and transmitting a signal corresponding to the determined triggering event to a receiving system.*" Lemelson teaches a system that may be programmed to "transmit an alert signal to a remote monitor station when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving." *Id.* at Col. 3:50-54. A person of ordinary skill in the art would have understood that transmitting an alert signal to a remote monitor station explicitly teaches, or at a minimum inherently discloses, storing the alert signal so that it may be transmitted.

164. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together

disclose each element of claim 7. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
7. The method according to claim 6, further including the steps of:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 6.**
determining if the one or more data elements indicate one or more predetermined triggering events,	**Lemelson discloses determining if data indicates predetermined triggering events at 3:24-26; 3:31-36:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may ***define a plurality of select driving patterns including, for example, erratic or otherwise hazardous driving***. Other evaluation codes may ***correspond to other driving patterns such as deviation from a planned course of travel***."
where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory;	**Lemelson discloses correlating data to a trigger event if the determination is positive at 3:39-44; 3:50-54; 3:63-4:2:** "***When an evaluation code is computed which indicates an erratic or otherwise hazardous driving pattern or condition***, the system is programmed to warn [the] driver . . . The system may also be programmed to ***transmit an alert signal*** to a remote monitor station ***when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving***. . . . Also provided are a vehicle brake controller 27 and acceleration controller 29. . .[that] can be used to prevent the vehicle from being driven at an unsafe speed or may be used to disable the vehicle from being driven. The brake and acceleration controllers may be activated by the programming of the system 10 itself when a hazardous driving pattern is detected. . ." *Determining whether to "warn the driver," "transmit an alert signal to a remote monitor station," "prevent the vehicle from being driven at an unsafe speed" or "disable the vehicle from being driven" based on "hazardous driving" explicitly teaches, or at a minimum inherently discloses, correlating the data elements to multiple types of predetermined trigger events (e.g. hazardous driving events merely requiring a warning versus hazardous driving events requiring disabling the vehicle). A person of ordinary skill would have understood this disclosure to teach that these types of predetermined trigger events are stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory and preset driving patterns stored in the second memory or region of memory so that they can be compared with each other.*
and, storing and transmitting a signal corresponding to the determined triggering event to a receiving system.	**Lemelson discloses storing select information corresponding to triggering events at 3:24-26; 3:28-30:** "Evaluation codes are ***stored*** in select locations in memory along with associated time and date codes corresponding to the time interval being evaluated." *Transmitting an alert signal to a remote monitor station explicitly teaches, or at a minimum inherently discloses, storing the alert signal so that it may be transmitted.*

(h) Dependent Claim 8

165. An overview of the reasons for rejection of claim 8 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

166. Claim 8 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis. For the sake of comparison, dependent claim 7 is also provided below. It is readily seen that various elements are essentially identical to corresponding elements in method claim 7.

	Claim 7		**Claim 8**
[7.1]	The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,	[8.1]	The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,
[7.2]	storing ***and*** transmitting a signal corresponding to the determined triggering event to a receiving system.	[8.2]	storing ***or*** transmitting a signal corresponding to the determined triggering event to a receiving system.

167. Accordingly, the analysis for elements [8.1] and [8.2] is essentially the same as that provided above for elements [7.1] and [7.2], respectively. Element [8.2] recites "storing or transmitting" information while element [7.2] recites "storing and transmitting." According, the analysis for narrower element [7.2] is the same for element [8.2].

168. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together

disclose each element of claim 8. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
8. The method according to claim 6, further including the steps of:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 6.**
determining if the one or more data elements indicate one or more predetermined triggering events,	**Lemelson discloses determining if data indicates predetermined triggering events at 3:24-26; 3:31-36:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may ***define a plurality of select driving patterns including, for example, erratic or otherwise hazardous driving***. Other evaluation codes may ***correspond to other driving patterns such as deviation from a planned course of travel***."
where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory;	**Lemelson discloses correlating data to a triggering event if determination is positive at 3:39-44; 3:50-54; 3:63-4:2:** "***When an evaluation code is computed which indicates an erratic or otherwise hazardous driving pattern or condition***, the system is programmed to warn [the] driver . . . The system may also be programmed to transmit ***an alert signal*** to a remote monitor station ***when an evaluation code is computed which corresponds to erratic or otherwise hazardous driving***. . . . Also provided are a vehicle brake controller 27 and acceleration controller 29. . .[that] can be used to prevent the vehicle from being driven at an unsafe speed or may be used to disable the vehicle from being driven. The brake and acceleration controllers may be activated by the programming of the system 10 itself when a hazardous driving pattern is detected. . ." *Determining whether to "warn the driver," "transmit an alert signal to a remote monitor station," "prevent the vehicle from being driven at an unsafe speed" or "disable the vehicle from being driven" based on "hazardous driving" inherently discloses correlating the data elements to multiple types of predetermined trigger events (e.g. hazardous driving events merely requiring a warning versus hazardous driving events requiring disabling the vehicle). A person of ordinary skill would have understood this disclosure to teach that these types of predetermined trigger events are stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory and preset driving patterns stored in the second memory or region of memory so that they can be compared with each other.*
and, storing or transmitting a signal corresponding to the determined triggering event to a receiving system.	**Lemelson discloses transmitting a signal corresponding to the determined triggering event to a receiving system at 3:51-57:** "The system may also be programmed to ***transmit*** an alert signal to a remote monitor station ***when an evaluation code is computed which corresponds to erratic or hazardous driving***."

(i) Dependent Claim 10

169. An overview of the reasons for rejection of claim 10 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

170. Dependent claim 10 recites that "*The method according to claim 6, further comprising the steps of: using safety or other actuarial standard values as the preset values; and, generating an adjusted insurance cost as the output data value.*" As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 6.

171. Lemelson teaches a system that is programmed to "compute an evaluation code corresponding to an assessment as to how the vehicle is being driven," and that the "evaluation codes may define a plurality of select driving patterns," including "erratic or otherwise hazardous driving," and "deviation from a planned course of travel." Ex. E at Col. 3:24-26; Col. 3:31-36. Dorweiler proposes that certain hazard information, including safety values monitored using "devices" like the system devices in Lemelson, would be useful for generating a cost of insurance for the vehicle. *See* Ex. F at 321. For example, Dorweiler discloses that, in the case of vehicle insurance, driver "habits" and "speed" may be useful for determining insurance rates. *Id.* at 337. Dorweiler further teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339.

172. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together

disclose each element of claim 10. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
10. The method according to claim 6, further comprising the steps of:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 6.**
using safety or other actuarial standard values as the preset values;	**Lemelson discloses using safety as the preset values at 3:24-26; 3:31-36:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may define a plurality of select driving patterns including, for example, ***erratic or otherwise hazardous driving***. Other evaluation codes may correspond to other driving patterns such as ***deviation from a planned course of travel***."
and, generating an adjusted insurance cost as the output data value.	**Dorweiler proposes that hazard information, including certain safety values monitored using devices like the devices in Lemelson (e.g., driver habits, speed), would be useful for generating an adjusted insurance cost at 337.** **Dorweiler discloses that hazard media may be useful for determining insurance premiums at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337:** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires making an adjustment to the insurance cost retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."

(j) Dependent Claim 11

173. An overview of the reasons for rejection of claim 11 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

174. Dependent claim 11 recites that "*The method according to claim 10, further comprising the steps of: using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted insurance cost.*" As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 10.

175. Lemelson teaches "performance variables," which include the vehicle's "location," that are continually stored in memory "along with an associated time and date code." Ex. E at Col. 1:17-18; Col. 3:21. Lemelson further discloses that the system is programmed to "analyze the stored performance variables" and "compute an evaluation code corresponding to an assessment as to how the vehicle is being driven," and that the "evaluation codes may define a plurality of select driving patterns," including "erratic or otherwise hazardous driving," and "deviation from a planned course of travel." *Id.* at Col. 3:24-26; Col. 3:31-36.

176. Dorweiler proposes that certain hazard information that can be monitored by devices, including data monitored by the system devices in Lemelson, would be useful for generating an adjusted insurance cost. *See* Ex. F at 321, 337. For example, Dorweiler discloses that, in the case of vehicle insurance, "day and/or night use of car" may be useful for determining insurance rates. *Id.* at 337. Dorweiler further teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively."

Id. at 339. Dorweiler and Lemelson's focus on similar data elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to adjust insurance costs.

177. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 11. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
11. The method according to claim 10, further comprising the steps of:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 10.**
using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted insurance cost.	**Lemelson discloses using location as a data element at 1:17-18:** "Such performance variables include the vehicle's speed, direction, and ***location***." **Lemelson discloses storing the location of vehicle along with corresponding time at 3:21:** "Performance variables are continually stored in memory as they are computed ***along with an associated time*** and date code." **Lemelson discloses comparing location (performance variables) and time to safety values at 3:24-26; 3:31-36:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may define a plurality of select driving patterns including, for example, ***erratic or otherwise hazardous driving***. Other evaluation codes may ***correspond*** to other driving patterns such as ***deviation from a planned course of travel***." **Dorweiler proposes that hazard information, including certain data parameters monitored by the system in Lemelson (e.g., day/night use of car) may be useful for generating an adjusted insurance cost at 337.** **Dorweiler discloses that hazard media may be useful for determining insurance premiums at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., day/night use of car) at 337:** "Some of the critical conditions that contribute to the hazard

Claim Element	Lemelson in View of Dorweiler
	covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, habits, impairments, etc.; 6. Mileage; 7. Speed; 8. Weather conditions; 9. Seasonal use of car; and 10. ***Day and/or night use of car***." **Dorweiler discloses that using certain hazard media requires making an adjustment to the insurance cost retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***."

(k) Dependent Claim 12

178. An overview of the reasons for rejection of claim 12 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

179. Dependent claim 12 recites that "*The method according to claim 11 wherein: the adjusted insurance cost can be for a prospective or retrospective basis.*" As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 11.

180. Dorweiler discloses that the adjustment to the insurance cost may be made prospectively or retrospectively depending on the hazard media. For example, the "introduction of a mileage, car-hour, or fuel-consumption exposure into rate making" would require "a final adjustment which would be determined retrospectively," while "car-year" would "measure[] the exposure prospectively." Dorweiler and Lemelson's focus on similar data elements would have

motivated someone of skill in the art to extend Lemelson's use of vehicle data to adjust insurance costs.

181. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 12. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
12. The method according to claim 11 wherein:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 11.**
the adjusted insurance cost can be for a prospective or retrospective basis.	**Dorweiler discloses that the adjustment to the insurance cost may be made prospectively or retrospectively depending on the hazard media at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into rate making would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure ***prospectively***, the others require a ***final adjustment which would be determined retrospectively***."

(l) Dependent Claim 13

182. An overview of the reasons for rejection of claim 13 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

183. Dependent claim 13 recites that "*The method according to claim 6, further comprising the steps of: using safety or other actuarial standard values as the preset values; and, generating an adjusted underwriting cost as the output data value.*" As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 6.

184. Lemelson teaches a system that is programmed to "compute an evaluation code corresponding to an assessment as to how the vehicle is being driven," and that the

"evaluation codes may define a plurality of select driving patterns," including "erratic or otherwise hazardous driving," and "deviation from a planned course of travel." Ex. E at Col. 3:24-26; Col. 3:31-36. Dorweiler proposes that certain hazard information, including safety values monitored using "devices" like the system devices in Lemelson, would be useful for generating a cost of insurance for the vehicle. *See* Ex. F at 321. For example, Dorweiler discloses that driver "habits" and "speed" may be useful for determining insurance rates. *Id.* at 337. Dorweiler further teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339. A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost. Dorweiler and Lemelson's focus on similar data elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to underwriting costs.

185. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 13. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
13. The method according to claim 6, further comprising the steps of:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 6.**
using safety or other actuarial standard values as the preset values;	**Lemelson discloses using safety as the preset values at 3:24-26; 3:31-36:** "[T]he system is programmed to analyze the stored performance variables over a period of time and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may define a plurality of select driving patterns including, for example, ***erratic or otherwise hazardous driving***. Other evaluation codes may correspond to other driving patterns such as ***deviation from a planned course of travel***."
and, generating an adjusted underwriting cost as	**Dorweiler proposes that hazard information, including**

Claim Element	Lemelson in View of Dorweiler
the output data value.	**certain data parameters monitored by the system in Lemelson (e.g., driver habits, speed), would be useful for generating an adjusted insurance cost at 337.** **Dorweiler discloses that hazard media may be useful for determining insurance premiums at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., driver habits, speed) at 337:** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, ***habits***, impairments, etc.; 6. Mileage; 7. ***Speed***; 8. Weather conditions; 9. Seasonal use of car; and 10. Day and/or night use of car." **Dorweiler discloses that using certain hazard media requires making an adjustment to the insurance cost retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***." *A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.*

(m) Dependent Claim 14

186. An overview of the reasons for rejection of claim 14 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

187. Dependent claim 14 recites that "*The method according to claim 13, further comprising the steps of: using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted*

underwriting cost." As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 13.

188. Lemelson teaches "performance variables," which include the vehicle's "location," that are continually stored in memory "along with an associated time and date code." Ex. E at Col. 1:17-18; Col. 3:21. Lemelson further discloses a system that is programmed to "analyze the stored performance variables" and "compute an evaluation code corresponding to an assessment as to how the vehicle is being driven," and that the "evaluation codes may define a plurality of select driving patterns," including "erratic or otherwise hazardous driving," and "deviation from a planned course of travel." *Id.* at Col. 3:24-26; Col. 3:31-36.

189. Dorweiler proposes that certain hazard information, including safety values monitored using "devices" like the system devices in Lemelson, would be useful for generating an adjusted insurance cost. *See* Ex. F at 321; 337. For example, Dorweiler discloses that, in the case of vehicle insurance, "day and/or night use of car" may be useful for determining insurance rates. *Id.* at 337. Dorweiler further teaches that the insurance cost determined is for the selected time period monitored by disclosing that using certain hazard media in premium "rate making" requires making "a final adjustment which would be determined retrospectively." *Id.* at 339. A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

190. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 14. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
14. The method according to claim 13, further comprising the steps of:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 13.**
using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted underwriting cost.	**Lemelson discloses using *location* as a data element at 1:17-18:** "Such performance variables include the vehicle's speed, direction, and ***location***." **Lemelson discloses storing the location of vehicle along with corresponding *time* at 3:21:** "Performance variables are continually stored in memory as they are computed ***along with an associated time*** and date code." **Lemelson discloses comparing location (performance variables) and time to safety values at 3:24-26; 3:31-36:** "[T]he system is programmed to ***analyze the stored performance variables over a period of time*** and compute an evaluation code corresponding to an assessment as to how the vehicle is being driven. . . Evaluation codes may define a plurality of select driving patterns including, for example, ***erratic or otherwise hazardous driving***. Other evaluation codes may correspond to other driving patterns such as ***deviation from a planned course of travel***." **Dorweiler proposes that hazard information, including certain data parameters monitored by the system in Lemelson (e.g., day/night use of car) may be useful for generating an adjusted insurance cost at 337.** **Dorweiler discloses that hazard media may be useful for determining insurance premiums at 321:** "Obviously, the premiums collected are to be proportional to the hazard which is measured by the losses. The medium selected for measuring the exposure is the most important factor in making the premium collections in accordance with the probable loss incidence." **Dorweiler discloses that, in the case of vehicle insurance, a number of factors may be used as the hazard media (e.g., day/night use of car) at 337:** "Some of the critical conditions that contribute to the hazard covered by Automobile Public Liability Insurance or that cause deviations in this hazard are: 1. The car—age, condition, etc.; 2. Highways—road beds, curves, visibility, etc.; 3. Traffic density; 4. Laws, regulations, and their enforcement; 5. Efficiency of driver—age, experience, habits, impairments, etc.; 6. Mileage; 7. Speed; 8. Weather conditions; 9. Seasonal use of car; and 10. ***Day and/or night use of car***." **Dorweiler discloses that using certain hazard media requires making an adjustment to the insurance cost retrospectively at 339:** "The introduction of a mileage, car-hour, or fuel-consumption

Claim Element	Lemelson in View of Dorweiler
	exposure into ***rate making*** would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure prospectively, the others require a ***final adjustment which would be determined retrospectively***." *A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.*

(n) Dependent Claim 15

191. An overview of the reasons for rejection of claim 15 in light of Lemelson in view of Dorweiler is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

192. Dependent claim 15 recites that "*The method according to claim 14 wherein: the adjusted underwriting cost can be for a prospective or retrospective basis.*" As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose the method according to claim 14.

193. Dorweiler discloses that the adjustment to the insurance cost may be made prospectively or retrospectively depending on the hazard media. For example, the "introduction of a mileage, car-hour, or fuel-consumption exposure into rate making" would require "a final adjustment which would be determined retrospectively," while "car-year" would "measure[] the exposure prospectively." A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost. Dorweiler and Lemelson's focus on similar data elements would have motivated someone of skill in the art to extend Lemelson's use of vehicle data to adjusting underwriting costs.

194. As discussed above, *supra* at Section III.B(3), one of ordinary skill in the art at the time would have been motivated to combine Lemelson and Dorweiler, which together disclose each element of claim 15. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Lemelson in View of Dorweiler
15. The method according to claim 14 wherein:	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 14.**
the adjusted underwriting cost can be for a prospective or retrospective basis.	**Dorweiler discloses that the adjustment to the insurance cost may be made prospectively or retrospectively depending on the hazard media at 339:** "The introduction of a mileage, car-hour, or fuel-consumption exposure into rate making would require the prior development of experience on these media. The car-year is the only one of the enumerated media which measures the exposure ***prospectively***, the others require a ***final adjustment which would be determined retrospectively***." *Determining an adjusted insurance premium inherently includes determining an adjusted underwriting cost.*

5. Claim 9 Should be Rejected under 35 U.S.C. 103(a) as Obvious in Light of Lemelson in View of Dorweiler and the Admitted Prior Art

195. Claim 9 of the '970 patent is rendered obvious by Lemelson in view of Dorweiler and the Admitted Prior Art.

196. Dependent claim 9 recites that "[t]*he method as defined in claim 6 wherein the output data value is additionally used for computing an insurance rating for the vehicle for a future data collection period.*" As described above in Section III.B(4)(f), the combination of Lemelson and Dorweiler teaches, explicitly, inherently or implicitly, all of the elements of claim 6. The Admitted Prior Art reveals that it was well known to utilize vehicle and operator data to assess insurance rates prospectively. Ex. B, Amend. D at 5-6. Similarly, Lemelson and Dorweiler disclose utilizing vehicle and operator data to assess insurance rates for the monitored time period. Thus, someone of skill in the art would have been motivated to combine Lemelson,

Dorweiler and the Admitted Prior Art based on the similar ways in which they monitor, analyze, and use data elements for insurance purposes, and to assess insurance rates both for the measured period and prospectively, thereby making additional use of this data for the common purpose they disclose. A combination of these three references renders claim 9 obvious.

197. The following claim chart demonstrates, in further detail, how each element is disclosed by Lemelson, Dorweiler, and the Admitted Prior Art.

Claim Element	Lemelson in View of Dorweiler and the Admitted Prior Art
9. The method as defined in claim 6	**As discussed in the claim chart above, the combination of Lemelson and Dorweiler discloses the method as defined in claim 6.**
wherein the output data value is additionally used for computing an insurance rating for the vehicle for a future data collection period.	**The Admitted Prior Art discloses a system similar to that of Lemelson and Dorweiler and discloses using data to compute an insurance rate for a future collection period.** During prosecution of the '970 patent, the Applicants characterized the systems described in U.S. Patent Nos. 5,499,182 and 5,430,432 ("Ousbourne" and "Camhi," respectively) as comprising "a more sophisticated scheme of collecting historical information in a conventional insurance scheme by generating a prospective rate based upon then known operating results and parameters of the vehicle operator." Ex. B, Amend. D at 5. Thus, Applicants admitted that the prior art disclosed using vehicle and operator data to compute an insurance rate for a future time period.

C. Bouchard and Pettersen

198. Bouchard is a United States patent issued on November 7, 1995 – before any claimed priority date of the '970 patent – as U.S. Patent No. 5,465,079. The application for the Bouchard patent was filed on August 13, 1993 – years before any claimed priority date for the '970 patent – and claims priority to earlier applications. Claims 1-8 and 10-15 of the '970 patent are rendered obvious by Bouchard in view of Pettersen. Claim 9 of the '970 patent is rendered obvious by Bouchard in view of Pettersen and the Admitted Prior Art.

199. Pettersen is an international patent application, published on March, 8, 1990 – years before any claimed priority date of the '970 patent. Pettersen was cited by the

Applicants, but not relied upon by the Examiner, during prosecution of the '970 patent. *See* Ex. B, IDS. This does not bar its consideration as creating a substantial new question of patentability. MPEP § 2216. Rather, Pettersen is being combined with art newly cited for the examination proceeding and is being considered in a new light, namely Bouchard. MPEP § 2258.01.

1. Overview of Bouchard

200. Like the '970 patent, but earlier, Bouchard is directed to a method and system for monitoring vehicle sensors to determine the operational status of a vehicle. Ex. G at Col. 9:26-33. Bouchard discloses several data elements that can be obtained by monitoring vehicle sensors. *Id.* at Col. 9:27-47; Col. 24:9-16; Col. 30:19-22. These include what the '970 patent defines as "raw data elements," such as time, location, and vehicle speed; "calculated data elements," such as closing speed on vehicles to the front, rear, and sides; and "derived data elements," such as road and traffic conditions. *Id.*

201. Bouchard teaches using a combination of monitored data elements to evaluate the safety of the driver's performance in real-time. *Id.* at Col. 5:13-19. This is accomplished by comparing the driver's current performance to normal driving standards and the driver's past performance. *Id.* at Col. 5:21-29. Fig. 18 of the Bouchard patent provides a flow chart demonstrating how various data elements from different sensors are combined and compared with the driver's recent history:

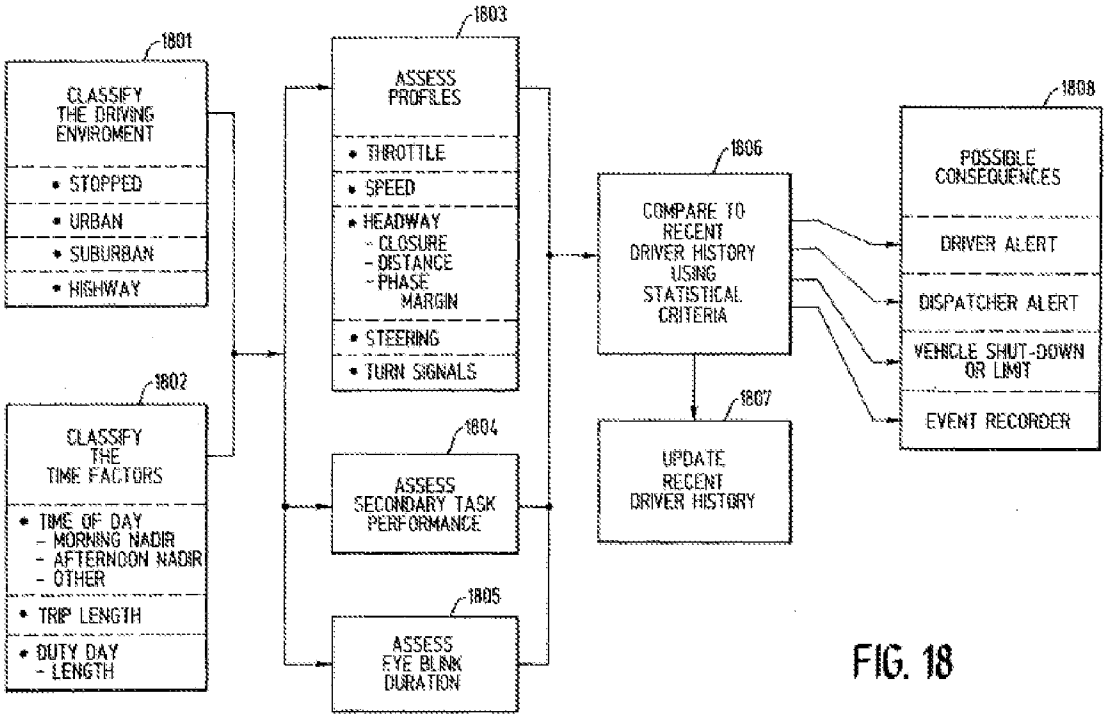


FIG. 18

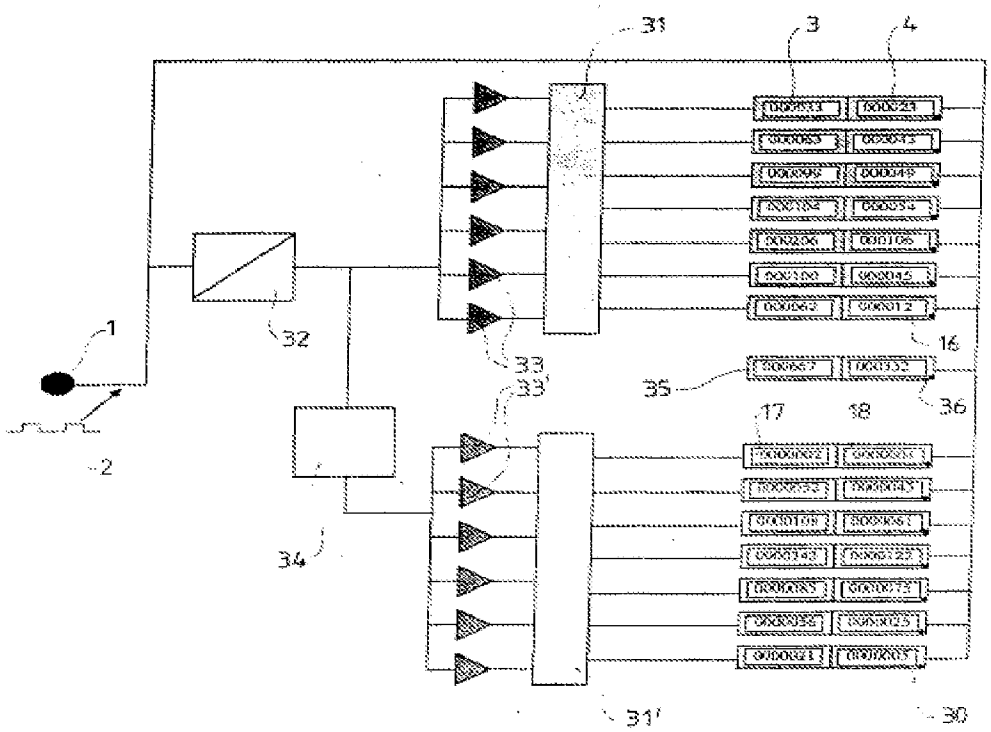
202. Like the '970 patent, Bouchard also teaches that certain data elements or combinations of data elements can signal trigger events. *Id.* at Col. 27:38-52. Bouchard gives the example of an accident event, signaled by airbag deployment or rapid deceleration. *Id.* at Col. 27:46-48. Trigger events can result in various consequences, including alerting a dispatcher or storing information to an event recorder. *Id.* at Col. 31:41-46.

203. Furthermore, Bouchard discloses "an event recording apparatus (ERA) that records selectable vehicle performance, operational status and/or environmental information." *Id.* at Col. 5:54-57. Each ERA can be personalized to an individual driver so as to analyze and record data elements from that driver's operation of the vehicle. *Id.* at Col. 6:6-8. The ERA can generate a profile of the driver based on this information. *Id.* at Col. 6:11-15.

2. Overview of Pettersen

204. The Pettersen reference discloses a method and system for "registering the driving pattern of a motor vehicle." Ex. H at 1. Pettersen discloses specific instructions about

how to implement the system as a circuit board, *id.* at 3, but also discloses that the system could be implemented using a microprocessor. *Id.* at 5. The Pettersen reference includes a diagram of a circuit board embodiment.



205. Pettersen monitors a sensor on the vehicle's wheels or gear box that generates a signal proportional to the speed of the vehicle. *Id.* at 2. The speed signal can be processed to determine the acceleration. *Id.* In the figure above, this calculation is performed by the derivation circuit 34. *Id.* at 4.

206. The speed and acceleration data elements are grouped into data ranges, such as speeds between 10-20 km/h. *Id.* Then the speed data elements are stored in counters 3-16 and the acceleration data elements are stored in counters 17-30. *Id.* Counter 35 is the sum of the speed counters and contains the total distance traveled. *Id.* at 4. The information stored in the counters serves as a record of the vehicle's driving pattern. *Id.* at 3.

Like the '970 patent, but published years earlier, Pettersen teaches how to use information about driving patterns to assess insurance costs. Pettersen discloses identifying careful driving patterns by low speeds and low accelerations. *Id.* Pettersen teaches that such driving patterns will lead to fewer accidents and lower disbursements from insurance companies. *Id.*

Indeed, Pettersen discloses that insurance companies may be interested in using the disclosed apparatus to monitor their policy holders. *Id.* Pettersen teaches that insurance companies could offer "bonuses" to drivers who exhibit "careful" driving patterns, based on monitored behavior. *Id.* One of ordinary skill at the time would naturally have understood Pettersen's disclosure of this "bonus" in its ordinary sense to include at least a possible reward for performance in the monitored period, and would thus have understood Pettersen to describe an insurance scheme where the policyholder receives a "bonus" or rebate against premiums paid for good driver behavior during a specific rating period (the monitored period). Put another way, data from a monitored period affects the cost of insurance for that period (the bonus is given for behavior during the monitored time period).

3. Bouchard and Pettersen

207. The similar mechanisms of the Bouchard and Pettersen references would have motivated a person of ordinary skill in the art at the time of the earliest claimed priority data of the '970 patent to combine their teachings. Pettersen discloses how to monitor a vehicle's speed, analyze it to determine acceleration, store speed and acceleration in counters, and use the result to determine driver safety and an insurance cost. Bouchard also discloses monitoring, analyzing, and storing data elements to evaluate driver safety. However, Bouchard monitors a greater variety of data elements, analyzes the data in more sophisticated ways, and stores the data in several locations. Bouchard also discloses using trigger events when the analyzed data

requires a specific response. A person of ordinary skill in the art would have recognized that Pettersen's method and system of using speed and acceleration to determine driver safety and insurance costs would be enhanced by incorporating the similar but more sophisticated driver safety monitoring and analysis techniques disclosed in Bouchard.

208. A person of ordinary skill in the art would also have been motivated to combine the Bouchard and Pettersen references because they have similar purposes. Both references are directed towards evaluating and enhancing driver safety by monitoring driver behavior. Bouchard was motivated by the "continuing need to . . . improve the safety of highway vehicle operations." Ex. G at Col. 1:28-30. Bouchard "provides a method and apparatus for evaluating a driver's performance . . . to determine a driver's ability to safely operate a vehicle . . . ." *Id.* at Col. 5:14-17. Similarly, Pettersen teaches a method of identifying "careful" drivers and predicted that "many [monitored drivers] will be stimulated to change their driving pattern; this will . . . reduce driving speed [and] the number of accidents." Ex. H at 1. The similar purposes of the two references, and the relationship between safety and insurance costs, confirm that someone of skill in the art would easily have associated Bouchard's monitoring and analysis techniques for driver safety with Pettersen's teachings about driver safety and insurance.

4. Claims 1-8, 10-15 Should be Rejected under 35 U.S.C. 103(a) as Obvious in Light of Bouchard in View of Pettersen

(a) Independent Claim 1

209. An overview of the reasons for rejection of claim 1 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

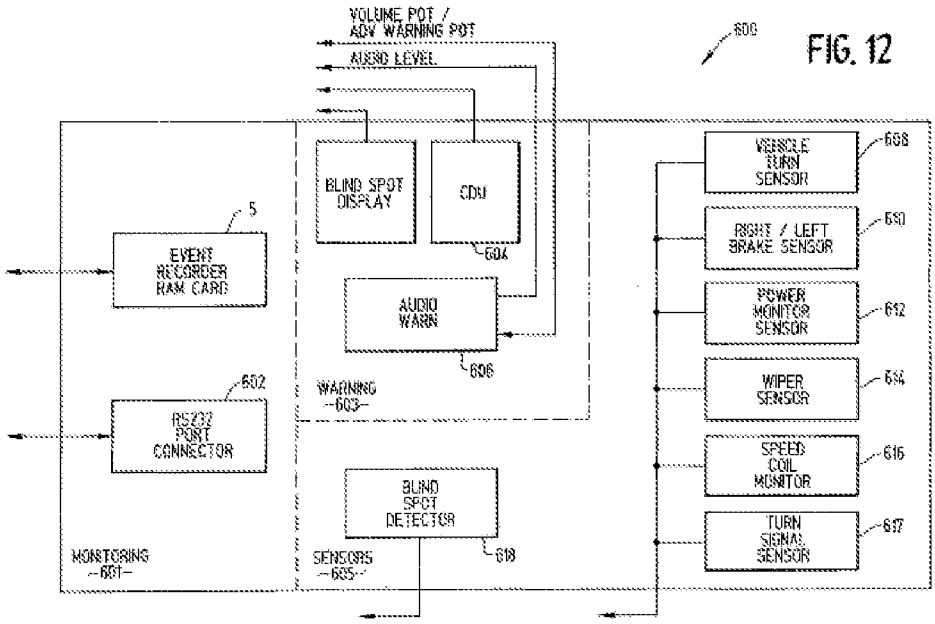
210. Independent claim 1 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [1.1] *A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising,*
>
> [1.2] *monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,*
>
> [1.3] *recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period*
>
> [1.4] *said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.*

211. Element [1.1] of claim 1 is a preamble that describes "*[a] method of generating a database comprising data elements representative of operator or vehicle driving characteristics.*" To the extent this preamble is considered a limitation of the claim, Bouchard discloses a method of collecting information from several different sensors, storing this information in an event recording device, and then analyzing the information to evaluate the driver's performance. Ex. G at Col. 5:15-19. A person of ordinary skill in the art would have recognized that this is a teaching of storing collected information in a database in order to facilitate the retrieval and analysis of the data elements when the driver's performance is evaluated.

212. Element [1.2] of claim 1 recites "*monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period.*" Bouchard discloses monitoring several data elements from different vehicle sensors. *Id.* at Col. 9:26-33. As shown below, Figure 12 illustrates some of the data

elements that Bouchard monitors using sensors, *i.e.*, "vehicle turn sensor," "right/left brake sensor," "power monitor sensor," "wiper sensor," "speed col monitor," and "turn signal sensor."



Bouchard teaches monitoring these data element because "[t]he important aspect of the present invention is the ability to determine the operational conditions under which the driver and vehicle are operating." *Id.* at Col. 10:51-53. Several of the example data elements that Bouchard discloses are identical to those from the '970 patent, such as time, location, vehicle speed, closing speed, and traffic conditions. *Id.* at Col. 9:27-47; Col. 24:9-16; Col. 30:19-22. Like the '970 patent, Bouchard discloses monitoring these elements during a selected time period. *Id.* at Col. 9:63-65.

213. Element [1.3] of claim 1 recites "*recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period.*" Bouchard discloses recording data elements when they are triggered by an unusual event that could affect the driver's safety, such as an accident. *Id.* at Col. 27:44-52. Pettersen

teaches that similar methods of monitoring and recording data elements would be "of interest for . . . car insurance companies." Ex. H at 1. Pettersen also teaches giving "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. *Id.* The similarities between the Bouchard and Pettersen references would have motivated someone of skill in the art to use Bouchard's technology to record data elements that are appropriate for determining a cost of insurance. Finally, by disclosing "a more fair bonus arrangement," Pettersen teaches rewarding a driver for behavior in the monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time. The combination of Bouchard and Pattersen thus discloses "recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period."

214. Element [1.4] of claim 1 recites "*said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.*" Among the data elements that Bouchard monitors are time of day, Ex. G at Col. 30:19-22, geographic position, *id.* at Col. 9:39-47, and speed, *id.* at Col. 30:29-35. One of Bouchard's embodiments is illustrated in Figure 18 and demonstrates how to create a log of vehicle speed for particular times and locations:

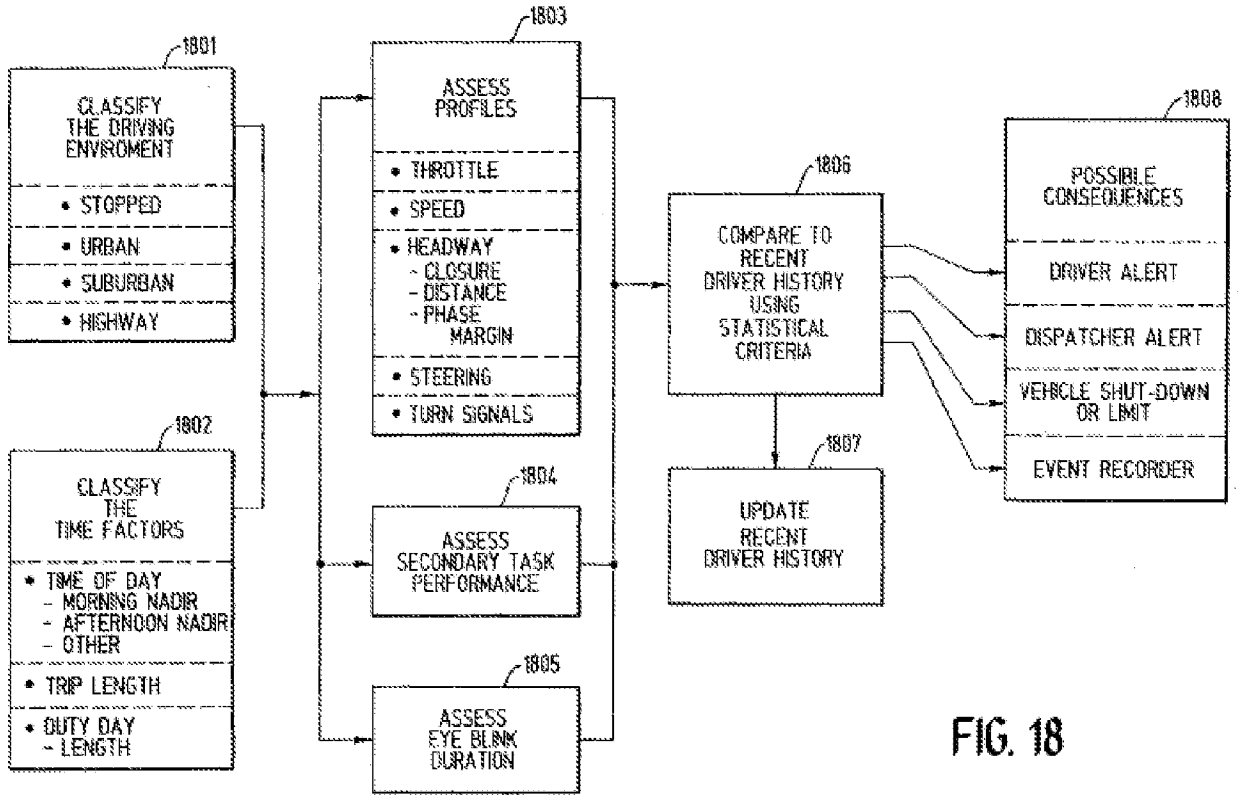


FIG. 18

In the figure, location of vehicle operation is reflected in "driving environment" in step 1801, time is represented in "time of day" in step 1802, and "speed" is incorporated in step 1803. The data from these steps is combined and stored in a log, or "driver history," in step 1807, *id.* at Col. 31:36-38.

215. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 1. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
1. A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Bouchard discloses a method of collecting information from vehicle sensors representative of driver performance at 5:13-19:** "[T]he present invention provides a method and apparatus for evaluating a driver's performance under actual real-time conditions to determine the driver's ability to safely operate a

Claim Element	Bouchard in View of Pettersen
	vehicle, utilizing the information that is gathered by the radar system and other sensors, together with information that was previously stored in the event recording device." *A person of ordinary skill in the art would have recognized that Bouchard teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
monitoring a plurality of the data elements	**Bouchard discloses monitoring a plurality of data elements at 9:26-33; see also 9:34-47; 10:18-51; 24:1-8; Fig. 12:** "The display and sensor section 600 which provides information from a variety of vehicle sensors 4a to the microcontroller 510 for use in calculating the hazard level . . . and/or to indicate the operational status and environment of the vehicle. Commonly known sensors may be used, for example, to measure distance travelled, vehicle speed (momentary and average), fuel consumption, fuel remaining, direction of travel, engine temperature, oil pressure, engine RPM, oil temperature, transmission fluid temperature, coolant temperature, engine timing and other values relating to the environment or performance of the vehicle."
representative of an operating state of a vehicle or an action of the operator during a selected time period; and,	**Bouchard discloses monitoring data elements to determine the operational conditions under which the driver and vehicle are operating at 10:51-53:** "The important aspect of the present invention is the ability to determine the ***operational conditions under which the driver and vehicle are operating***." **Bouchard discloses monitoring a plurality of data elements representative of the operational status of the vehicle at 9:26-33; see also 9:34-47; 10:18-51; 24:1-8; Fig. 12:** "The display and sensor section 600 which provides information from a variety of vehicle sensors 4a to the microcontroller 510 for use in calculating the hazard level . . . and/or ***to indicate the operational status*** and environment ***of the vehicle***. Commonly known sensors may be used, for example, to measure distance travelled, vehicle speed (momentary and average), fuel consumption, fuel remaining, direction of travel, engine temperature, oil pressure, engine RPM, oil temperature, transmission fluid temperature, coolant temperature, engine timing and other values relating to the environment or performance of the vehicle." **Bouchard discloses monitoring and analyzing driver performance during a selected time period at 9:63-65:** "The driver's performance ***over a recent period of time*** is compared to a standard derived from the personal profile calculated using the driver's past performance."
recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses recording monitored data elements relative to determining insurance bonuses against insurance costs for the**

Claim Element	Bouchard in View of Pettersen
	monitored period at 1: "Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a ***more fair bonus arrangement***, i.e. that policy holders having a ***"careful" driving pattern – low speeds and low accelerations*** - may be allotted a higher bonus." **Bouchard discloses recording data elements when they are triggered by an unusual condition at 27:44-52:** "As another example, such ***recording may be triggered by an unusual condition that may indicate an accident***, such as a sudden acceleration or deceleration, sudden application of the brakes, activation of an air bag, etc. Recording can also be triggered manually. ***Recording such information on a separate page in memory, and only upon being triggered by a particular event, permits capturing data for later analysis of vehicle and/or driver performance***." *A person of ordinary skill in the art would have recognized that Pettersen and Bouchard teach storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
during the selected time period	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses giving bonuses to drivers who drive carefully during the selected time period at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a more fair bonus arrangement, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus." *By disclosing "a more fair bonus arrangement," Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.*
said ones including, a time and location of vehicle operation	**Bouchard discloses monitoring time at 30:19-22:** "In addition to classifying the environment, certain time factors are classified (STEP 1802). The time factors include ***time of day*** (morning nadir, afternoon nadir, or other) . . . ." **Bouchard discloses monitoring geographic positioning information at 9:39-47; see also 11:1-2:** "Additional information can be obtained by providing other sensors, such as . . . ***geographic positioning information***."
and a corresponding log of vehicle speed for the time and location.	**Bouchard discloses monitoring time with respect to Fig. 18 at 30:19-22:**

Claim Element	Bouchard in View of Pettersen
	"In addition to classifying the environment, certain time factors are classified (STEP 1802). The time factors include ***time of day*** (morning nadir, afternoon nadir, or other) . . . ." **Bouchard discloses monitoring location with respect to Fig. 18 at 30:8-11:** "[T]he ***driving environment is classified*** by determining whether the vehicle is (1) stopped, (2) in an urban environment, (3) in a suburban environment, or (4) on an open highway (STEP 1801)." **Bouchard discloses monitoring speed with respect to Fig. 18 at 30:29-35:** "Certain profiles are then generated (STEP 1803). These profiles include characterizations of the history of the throttle, ***speed***, headway (closure, distance, and phase as determined by margin), steering, headlights, windshield wipers, and/or turn signal use. The throttle profile is determined in accordance with mean value and variability thereof, as is the speed profile." **Bouchard discloses logging the data elements of Fig. 18 at 31:36-38:** "In STEP 1807, ***the recent history of the driver is updated***. This updating is accomplished using new data derived from the earlier steps of FIG. 18."

(b) Independent Claim 2

216. An overview of the reasons for rejection of claim 2 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

217. Claim 2 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis. For the sake of comparison, independent claim 1 is also provided below. It is readily seen that various elements are essentially identical to corresponding elements in method claim 1.

	Claim 1		Claim 2
[1.1]	A method of generating a database comprising data elements representative of operator or vehicle driving characteristics, the method	[2.1]	A database comprising

	comprising,		
[1.2]	monitoring a plurality of the data elements representative of an operating state of a vehicle or an action of the operator during a selected time period; and,	[2.2]	data elements representative of operator or vehicle driving characteristics for a selected time period
[1.3]	recording selected ones of the plurality of data elements into the database when said ones are determined to be appropriate for recording relative to determining a cost of insurance for the vehicle during the selected time period,		
[1.4]	said ones including, a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location.	[2.3]	including a time and location of vehicle operation and a corresponding log of vehicle speed for the time and location,
		[2.4]	the database then being used to determine an insurance charge for the vehicle operation for said selected time period.

218. Accordingly, the analysis for elements [2.1], [2.2], and [2.3] is the same as that provided above for elements [1.1], [1.1]/[1.2], and [1.4], respectively. Element [2.4] is a new element not appearing in claim 1. Accordingly, [2.4] will be addressed in part below.

219. Element [2.4] of claim 2 recites that "*the database then being used to determine an insurance charge for the vehicle operation for said selected time period.*" As discussed above, Pettersen discloses a system similar to Bouchard for monitoring and recording data elements representing the driving pattern of a motor vehicle and that such a system would be "of interest for . . . car insurance companies." Ex. H at 1. Pettersen also teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. *Id.* Pettersen would have therefore motivated someone of skill in the art to use Bouchard's technology to determine an insurance cost based on a standard insurance charge and any applicable bonuses. By disclosing "a more fair bonus

arrangement," Pettersen teaches rewarding a driver for monitored behavior with a "bonus" or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.

220. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 2. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
2. A database comprising	**To the extent this preamble is considered a limitation to the claim, Bouchard discloses analyzing previously gathered information at 5:14-19:** "[T]he present invention provides a method and apparatus for evaluating a driver's performance under actual real-time conditions to determine the driver's ability to safely operate a vehicle, utilizing the information that is gathered by the radar system and other sensors, together with information that was previously stored in the event recording device." *A person of ordinary skill in the art would have recognized that Bouchard teaches storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
data elements representative of operator or vehicle driving characteristics for a selected time period including	**Bouchard discloses an event recording apparatus that has information representative of a driver's driving history and performance at 6:6-8:** "[A]n ERA has information that identifies the driver, and a record of that ***driver's driving history and performance***." **Bouchard discloses data elements representative of driver performance for a selected time period at 9:63-65:** "The driver's performance ***over a recent period of time*** is compared to a standard derived from the personal profile calculated using the driver's past performance."
a time and location of vehicle operation and	**Bouchard discloses monitoring time at 30:19-22:** "In addition to classifying the environment, certain time factors are classified (STEP 1802). The time factors include ***time of day*** (morning nadir, afternoon nadir, or other) . . . ." **Bouchard discloses monitoring location at 9:39-47 and 11:1-2:** "Additional information can be obtained by providing other sensors, such as . . . ***geographic positioning information***."
a corresponding log of vehicle speed for the time	**Bouchard discloses monitoring time with respect to Fig.**

Claim Element	Bouchard in View of Pettersen
and location,	**18 at 30:19-22:** "In addition to classifying the environment, certain time factors are classified (STEP 1802). The time factors include ***time of day*** (morning nadir, afternoon nadir, or other) . . . ." **Bouchard discloses monitoring location with respect to Fig. 18 at 30:8-11:** "[T]he ***driving environment*** is classified by determining whether the vehicle is (1) stopped, (2) in an urban environment, (3) in a suburban environment, or (4) on an open highway (STEP 1801)." **Bouchard discloses monitoring speed with respect to Fig. 18 at 30:29-35:** "Certain profiles are then generated (STEP 1803). These profiles include characterizations of the history of the throttle, ***speed***, headway (closure, distance, and phase as determined by margin), steering, headlights, windshield wipers, and/or turn signal use. The throttle profile is determined in accordance with mean value and variability thereof, as is the speed profile." **Bouchard discloses logging the data elements of Fig. 18 at 31:36-38:** "In STEP 1807, ***the recent history of the driver is updated***. This updating is accomplished using new data derived from the earlier steps of FIG. 18."
the database then being used to determine an insurance charge for the vehicle operation	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses using driving data to determine an insurance charge at 1:** "Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus." *A person of ordinary skill in the art would have recognized that Pettersen and Bouchard teach storing collected information in a database in order to facilitate the retrieval and analysis of the data elements.*
for said selected time period.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses giving bonuses to drivers who drive carefully during the selected time period at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a more fair bonus arrangement, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus.

Claim Element	Bouchard in View of Pettersen
	By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.

(c) Dependent Claim 3

221. An overview of the reasons for rejection of claim 3 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

222. Dependent claim 3 recites that "*The database as defined in claim 2 wherein the data elements comprise raw data elements, derived data elements and calculated data elements*." As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the database as defined in claim 2.

223. Bouchard discloses monitoring sensors to obtain what the '970 patent defines as "raw data elements," such as distance travelled, vehicle speed, engine temperature, RPM, break pressure, wipers, and lights. Ex. G at Col. 9:27-47; Ex. A at Col. 7:23-8:25. Bouchard also discloses road conditions and traffic conditions, which the '970 patent describes as "derived data elements." Ex. G at Col. 24:9-16; Ex. A at Col. 7:23-8:25. Road conditions, such as a wet road, can be derived from windshield wiper status. Ex. G at Col. 24:9-16. Traffic conditions can be derived by analyzing speed. *Id.* Finally, Bouchard discloses the closing rates of targets, which the '970 patent describes as "calculated data elements." *Id.* at Col. 9:34-44; Ex. A at Col. 7:23-8:25. Bouchard provides detailed instruction about interpreting transmitted and received radar signals to calculate the closing rate of a target. Ex. G at 9:34-44.

224. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 3. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
3. The database as defined in claim **2** wherein the data elements comprise	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the database as defined in claim 2.**
raw data elements,	**Bouchard discloses example raw data elements at 9:27-47:** "Commonly known sensors may be used, for example, to measure distance travelled, vehicle speed . . . engine temperature . . . engine RPM . . . coolant temperature . . . brake pedal pressure sensor . . . windshield wiper status . . . fog light status . . . ."
derived data elements and	**Bouchard discloses deriving road conditions at 24:9-16:** "For example, if the micro controller 510 detects that the windshield wipers of the vehicle have been turned on, thus indicating a rain condition, the preferred following distance from targets may be lengthened ***to account for longer stopping distances on a wet road***. Additionally, the power output by the transmitter may be increased to compensate for the attenuation caused by ***rain or snow conditions***." **Bouchard discloses deriving traffic conditions at 24:9-16:** "In accordance with the preferred embodiment of the present invention, the ***driving environment*** is classified by determining whether the vehicle is (1) stopped, (2) in an urban environment, (3) in a suburban environment, or (4) on an open highway (STEP 1801). In the present example, environment classification is determined using speed. Thus, if the speed is 0 mph, then the vehicle is determined to be stopped. An urban environment is determined if the speed is within the range of 0-35 mph. A suburban environment is determined if the vehicle speed is in the range of 35-45 mph. Finally, a highway environment is determined if the speed exceeds 45 mph."
calculated data elements.	**Bouchard discloses calculating the closing rate of a target at 9:34-44:** "The digital electronics section 500 itself generates information from the transmitted and received radar signal, such as the closing rate (CR) of a target with respect to the vehicle . . . ." **Bouchard discloses doing computations on raw data elements at 26:56-59:** "The micro controller 22 may also do some computation on the data, such as determining a miles-per-gallon value or average speed, to derive processed data for storage in the RAM card 20."

(d) Independent Claim 4

225. An overview of the reasons for rejection of claim 4 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

226. Independent claim 4 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [4.1] *A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period, comprising, steps of:*
>
> [4.2] *generating an initial operator profile;*
>
> [4.3] *monitoring operator driving characteristics during the selected period;*
>
> [4.4] *and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.*

227. Element [4.1] of claim 4 is a preamble that describes "*[a] method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period.*" To the extent this preamble is considered a limitation of the claim, Bouchard discloses collecting information from several different sensors "to determine the operational conditions under which the driver and vehicle are operating." Ex. G at Col. 10:51-53. Bouchard then analyzes the information to evaluate the driver's performance. *Id.* at Col. 5:15-19. Pettersen teaches that the operational conditions of a vehicle would be "of interest for . . . car insurance companies." Ex. H at 1. Pettersen also discloses that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. *Id.* Pettersen would have therefore motivated someone of skill in the art to use Bouchard's teaching of technology monitoring the operational conditions of a vehicle to insure a vehicle operator based upon driving characteristics monitored during that period.

228. Element [4.2] of claim 4 recites "*generating an initial operator profile*." Bouchard discloses determining a baseline performance standard for a vehicle operator. Ex. G at 5:59-63. Bouchard in some instances refers to this step as "generat[ing] short term profiles" from the "driver's recent driving history." *Id.* at 31:31.

229. Element [4.3] of claim 4 recites "*monitoring operator driving characteristics during the selected period*." Bouchard discloses monitoring several data elements from different vehicle sensors. *Id.* at Col. 9:26-33. Figure 12, *supra*, illustrates some of the data elements that Bouchard teaches can be monitored. Bouchard teaches monitoring these data elements because "[t]he important aspect of the present invention is the ability to determine the operational conditions under which the driver and vehicle are operating." *Id.* at Col. 10:51-53. Several of the example data elements that Bouchard discloses are identical to those from the '970 patent, such as time, location, vehicle speed, closing speed, and traffic conditions. *Id.* at Col. 9:27-47; Col. 24:9-16; Col. 30:19-22. Bouchard also monitors these elements during a selected time period. *Id.* at Col. 9:63-65.

230. Element [4.4] of claim 4 recites "*and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period*." Pettersen discloses a system similar to Bouchard for monitoring and recording data elements representing the driving pattern of a motor vehicle. Ex. H at 1. Pettersen also teaches that this system would be "of interest for . . . car insurance companies." *Id.* Insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs in the monitored period. *Id.* Pettersen would have therefore motivated someone of skill in the art to use Bouchard's technology to determine an insurance cost. This insurance cost would be based on a standard insurance charge and any applicable bonuses. Additionally, by disclosing "a more fair

bonus arrangement," Pettersen teaches rewarding a driver retrospectively for past behavior. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.

231. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 4. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
4. A method of insuring a vehicle operator for a selected period based upon operator driving characteristics during the period, comprising, steps of:	**To the extent this preamble is considered a limitation to the claim, Bouchard discloses a method of collecting information from vehicle sensors representative of driver performance at 5:13-19:** "[T]he present invention provides a method and apparatus for evaluating a driver's performance under actual real-time conditions to determine the driver's ability to safely operate a vehicle, utilizing the information that is gathered by the radar system and other sensors, together with information that was previously stored in the event recording device." **Pettersen discloses insuring a vehicle operator based on similarly collected data at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern – low speeds and low accelerations - may be allotted a higher bonus."
generating an initial operator profile;	**Bouchard discloses determining a baseline performance standard for the operator at 5:59-63:** "[T]he information that is recorded is also used ***to determine a baseline performance standard*** based on the driver's past performance against which a driver's present performance can be measured."
monitoring operator driving characteristics during the selected period;	**Bouchard discloses monitoring the characteristics of particular drivers at 28:44-52:** "Since the RAM card 20 is removable and relatively inexpensive, each driver of a particular vehicle, such as a fleet car or bus, could be given a personalized RAM card 20. Thus, the ERA invention can be used to ***monitor the performance of particular drivers, including characteristics*** such as average driving speed, braking and acceleration habits, typical "headway" distance (i.e., the distance from the vehicle immediately in front in the same lane, as determined by the radar system), etc." **Bouchard discloses monitoring data elements**

Claim Element	Bouchard in View of Pettersen
	representative of a driver's performance at 31:27-32: "[A] performance distribution curve is generated which ***indicates the level of a driver's performance*** at anyone time with relation to his performance at each other time recorded. The driver's recent driving history is used to generate short term profiles and to evaluate current secondary task performance." **Bouchard discloses monitoring and analyzing driver performance during the selected time period at 9:63-65:** "The driver's performance ***over a recent period of time*** is compared to a standard derived from the personal profile calculated using the driver's past performance."
and deciding a cost of vehicle insurance for the period based upon the operating characteristics monitored in that period.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses deciding a cost of vehicle insurance based on monitored data elements for the monitored time period at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern – low speeds and low accelerations - may be allotted a higher bonus. *By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.*

(e) Independent Claim 5

232. An overview of the reasons for rejection of claim 5 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

233. Independent claim 5 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [5.1] *A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising:*

[5.2] *determining an initial insured profile and a base cost of vehicle insurance based on said insured profile;*

[5.3] *monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during the selected period;*

[5.5] *recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards;*

[5.6] *consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost; and,*

[5.7] *producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.*

234. Element [5.1] of claim 5 is a preamble that describes "*A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards.*" Bouchard discloses monitoring several data elements from different vehicle sensors. Ex. G at Col. 9:26-33. This information can then be stored in an event recording device. *Id.* at Col. 5:18-19. It can also be communicated to a "dispatcher or controller at a remote site who is responsible for ensuring the safety of the drivers and vehicle." *Id.* at Col. 6:23-27. Bouchard teaches monitoring these elements because "[t]he important aspect of the present invention is the ability to determine the operational conditions under which the driver and vehicle are operating." *Id.* at Col. 10:51-53.

235. Bouchard discloses preset safety standards based on dangerous conditions such as "a sudden application of the brakes [or] activation of an air bag." *Id.* at Col. 27:44-52. Bouchard also discloses other safety standards such as "normal driving standards" and "the driver's past performance." *Id.* at Col. 5:20-25. Pettersen teaches that driver safety as indicated

by the operational conditions of a vehicle would be "of interest for . . . car insurance companies." Ex. H at 1. Pettersen teaches that insurance companies could adjust the cost of insurance by giving "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. *Id.* Accordingly, the combination of Bouchard and Pettersen discloses "monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards."

236. Element [5.2] of claim 5 recites "*determining an initial insured profile and a base cost of vehicle insurance based on said insured profile*." Pettersen teaches that insurance companies can "set a more fair bonus arrangement" for policy holders based on the driver's performance. *Id.* Setting a bonus inherently discloses an initial insured profile because calculating a more fair bonus arrangement necessarily involves calculating an initial (pre-bonus) premium, and an initial profile linking the insured to this base cost. Furthermore, Bouchard discloses determining a baseline performance standard for a vehicle operator. Ex. G at Col. 5:59-63; Col. 31:31. The similar mechanisms and purposes of the Bouchard and Pettersen references would have motivated someone of skill in the art to use Bouchard's initial profile for insurance purposes, particularly in light of Pettersen's inherent disclosure of an initial insured profile.

237. Element [5.3] of claim 5 recites "*monitoring a plurality of data elements representative of an operating state of a vehicle or an action of the operator during the selected period*." Bouchard discloses monitoring several data elements from different vehicle sensors *Id.* at Col. 9:26-33. Figure 12, *supra*, illustrates some of the data elements that Bouchard monitors. Bouchard also monitors the driver's actions with respect to throttle, steering, and turn signals.

Id. at Col. 30:29-57. Bouchard teaches monitoring these data element because "[t]he important aspect of the present invention is the ability to determine the operational conditions under which the driver and vehicle are operating." *Id.* at Col. 10:51-53. Several of the example data elements that Bouchard discloses are identical to those from the '970 patent, such as time, location, vehicle speed, closing speed, and traffic conditions. *Id.* at Col. 9:27-47; Col. 24:9-16; Col. 30:19-22. Like the '970 patent, Bouchard monitors these elements over a selected time period. *Id.* at Col. 9:63-65.

238. Element [5.4] of claim 5 recites "*recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards.*" Bouchard teaches that unusual conditions could affect the driver's safety. *Id.* at Col. 27:44-52. These conditions are triggered by a relationship between the values of the data elements and the conditions of the unusual event. *Id.* Bouchard gives the example of an accident condition, triggered by "a sudden application of the brakes [or] activation of an air bag." *Id.* When the event is triggered, information about the condition is recorded to a separate area of memory for later analysis. *Id.* Bouchard also discloses other safety standards such as "normal driving standards" and "the driver's past performance." *Id.* at Col. 5:20-25. Finally, Bouchard discloses preselected hazard levels that trigger alerts for the driver. *Id.* at Col. 24:33-37. Data elements can trigger increasing hazard levels depending on the amount of danger. *Id.*

239. Element [5.5] of claim 5 recites "*consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost.*" Bouchard discloses consolidating selected data elements into "profile types." *Id.* at Col. 30:46-58. Profile types are related data elements that together provide information about a particular aspect of vehicle operation. *Id.* For example, the "headway profile" includes speed, acceleration rate, and

proximity to other vehicles. *Id.* at Col. 30:43-46. The "steering profile" includes the frequency and amplitude of steering changes, lane position, and the relative movement of other vehicles. *Id.* at Col. 30:46-58. The profiles are analyzed to determine the driver's performance level. *Id.* at Col. 31:24-35. Pettersen discloses that a system of monitoring the driving pattern of a motor vehicle like Bouchard's, would be "of interest for . . . car insurance companies" and could be used to modify the base cost of insurance, teaching that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. Ex. H at 1. Pettersen would have therefore motivated someone of skill in the art to use Bouchard's technology to consolidate data elements for identifying a discount to be applied to the base cost.

240. Element [5.6] of claim 5 recites "*producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.*" As disclosed above, Pettersen teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. *Id.* By disclosing "a more fair bonus arrangement," Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time. By teaching applying a bonus against an original insurance cost, Pettersen inherently teaches producing a final net cost of insurance to the insured.

241. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together

disclose each element of claim 5. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
5. A method of determining a cost of vehicle insurance for a selected period based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics during said period, whereby the cost is adjustable by relating the driving characteristics to predetermined safety standards, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Bouchard discloses monitoring and recording data representative of operator and vehicle driving characteristics at 9:26-33; 10:51-53 and relating the driving characteristics to predetermined safety standards at 5:20-25; 24:33-37. Pettersen discloses determining a cost of vehicle insurance based on similarly collected data at 1. See quotes below.** **Bouchard discloses communicating data to remote sites at 31:55-59:** "[I]f the driver is not performing at the required level at the end of the predetermined period, ***the microcontroller broadcasts a message to a dispatcher or controller at a remote site*** who is responsible for ensuring the safety of the driver and vehicle."
determining an initial insured profile and a base cost of vehicle insurance based on said insured profile;	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses setting a more fair bonus arrangement based on monitored data elements at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus." *Pattersen inherently discloses an initial insured profile because calculating a more fair "bonus" necessarily requires calculating an initial premium against which the bonus is to be applied, and thus an initial profile. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.* **Bouchard discloses determining a baseline performance standard for the operator at 5:59-63:** "[T]he information that is recorded is also used ***to determine a baseline performance standard*** based on the driver's past performance against which a driver's present performance can be measured." **Bouchard discloses generating a profile from information stored on an event recording apparatus at 6:11-15:** "A system processing unit, which in the preferred embodiment of the present invention is shared by the radar system, the ERA, and the driver fitness evaluating system, ***generates a profile of the driver*** based upon the information that is stored in the ERA."

Claim Element	Bouchard in View of Pettersen
monitoring a plurality of data elements	**Bouchard discloses monitoring a plurality of data elements at 9:26-33; see also 9:34-47; 10:18-51; 24:1-8; Fig. 12:** "The display and sensor section 600 which provides information from a variety of vehicle sensors 4a to the microcontroller 510 for use in calculating the hazard level . . . and/or to indicate the operational status and environment of the vehicle. Commonly known sensors may be used, for example, to measure distance travelled, vehicle speed (momentary and average), fuel consumption, fuel remaining, direction of travel, engine temperature, oil pressure, engine RPM, oil temperature, transmission fluid temperature, coolant temperature, engine timing and other values relating to the environment or performance of the vehicle."
representative of an operating state of a vehicle or an action of the operator during the selected period;	**Bouchard discloses monitoring data elements to determine the operational conditional under which the driver and vehicle are operating at 10:51-53:** "The important aspect of the present invention is the ability to determine the ***operational conditions under which the driver and vehicle are operating***." **Bouchard discloses monitoring a plurality of data elements representative of the operational status of the vehicle at 9:26-33; see also 9:34-47; 10:18-51; 24:1-8; Fig. 12:** "The display and sensor section 600 which provides information from a variety of vehicle sensors 4a to the microcontroller 510 for use in calculating the hazard level . . . and/or ***to indicate the operational status*** and environment ***of the vehicle***. Commonly known sensors may be used, for example, to measure distance travelled, vehicle speed (momentary and average), fuel consumption, fuel remaining, direction of travel, engine temperature, oil pressure, engine RPM, oil temperature, transmission fluid temperature, coolant temperature, engine timing and other values relating to the environment or performance of the vehicle." **Bouchard discloses monitoring and analyzing driver performance during the selected time period at 9:63-65:** "The driver's performance over a recent period of time is compared to a standard derived from the personal profile calculated using the driver's past performance."
recording selected ones of the plurality of data elements when said ones are determined to have a preselected relationship to the safety standards;	**Bouchard discloses recording data elements when they are triggered by a safety-related event at 27:44-52:** "***[R]ecording may be triggered by an unusual condition that may indicate an accident***, such as a sudden acceleration or deceleration, sudden application of the brakes, activation of an air bag, etc. Recording can also be triggered manually. ***Recording such information on a separate page in memory, and only upon being triggered by a particular event, permits capturing data for later analysis of vehicle and/or driver performance***."

Claim Element	Bouchard in View of Pettersen
	Bouchard discloses determining a relationship with normal driving standards at 5:20-25: "The present invention operates by monitoring conditions external to a driver of a motor vehicle. Each of the conditions monitored are used to make a ***determination as to whether the driver is performing in conformity with normal driving standards*** and the driver's past performance." **Bouchard discloses preselected hazard levels at 24:33-37:** "[T]he color of the lights change from green to yellow to red, respectively, as the level of the danger increases. The audio warning unit 606 includes a sound generator that emits an audible beep or warble if the ***hazard level*** exceeds a threshold level."
consolidating said selected ones for identifying a surcharge or discount to be applied to the base cost; and,	**Bouchard discloses consolidating selected data elements into types of profiles at 30:35-51:** "***The headway profile includes***: (1) the rate at which the vehicle approaches obstacles, including other vehicles (i.e., closure); (2) the vehicle speed; (3) how smoothly the vehicle accelerates, decelerates, and closes on obstacles (Le., jerk); (4) the distance between the vehicle equipped with the present invention and other vehicles, determined in terms of mean value and variability; (5) "phase margin" (Le., a measure of the vehicle operator's reserve capacity to respond safely to particular conditions that might arise); and (6) headlights 45 and windshield wipers are monitored since they are indications of poor visibility and road conditions. ***The steering profile*** is generated by monitoring the median frequency shifts, in other words, the variations in lane position. The frequency and amplitude of steering changes, correlated to the vehicle speed, provide a simplistic means for determining lane position." **Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses identifying a surcharge or discount to be applied to the base cost at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a more fair bonus arrangement, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus."
producing a final cost of vehicle insurance for the selected period from the base cost and the surcharge or discount.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses setting a bonus on insurance costs for the selected period at 1:** "The car insurance companies may ***fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a ***"careful" driving pattern*** - low speeds and low accelerations - may be allotted a ***higher bonus***." *By disclosing "a more fair bonus arrangement" Pettersen*

Claim Element	Bouchard in View of Pettersen
	teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time. *By teaching applying a bonus to an original insurance cost, Pettersen inherently teaches producing a final net cost of insurance to the insured.*

(f) Independent Claim 6

242. An overview of the reasons for rejection of claim 6 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

243. Independent claim 6 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [6.1] *A method of monitoring a human controlled power source driven vehicle, the method comprising:*
>
> [6.2] *extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;*
>
> [6.3] *analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements; and,*
>
> [6.4] *correlating the group data values to preset values in a second memory and generating an output data value based on the correlation wherein the output data value is used to compute an insurance rating for the vehicle FOR the data collection period.*

244. Element [6.1] of claim 6 is a preamble that recites "*A method of monitoring a human controlled power source driven vehicle.*" To the extent this preamble is considered a limitation of the claim, Bouchard discloses monitoring a powered vehicle controlled by a human driver. Ex. G at Col. 9:26-33; Col. 10:51-53; Col. 5:21-25.

245. Element [6.2] of claim 6 recites "*extracting one or more data elements from at least one sensor wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period.*" Bouchard discloses extracting data elements by having the system's microprocessor sample or poll the vehicle sensors for information. *Id.* at Col. 11:8-12. Additionally, a microcontroller takes an active role on the data bus and requests information from subsystems. *Id.* at Col. 29:33-38. Bouchard discloses monitoring select data elements reflecting the operating state of the vehicle and the driver's actions based on the "ability to determine the operational conditions under which the driver and vehicle are operating." *Id.* at Col. 10:51-53. Several of the example data elements that Bouchard discloses are identical to those from the '970 patent, such as time, location, vehicle speed, closing speed, and traffic conditions. *Id.* at Col. 9:27-47; Col. 24:9-16; Col. 30:19-22. Bouchard also monitors these elements during a data collection period. *Id.* at Col. 9:63-65.

246. Element [6.3] of claim 6 recites "*analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements.*" Bouchard discloses analyzing and grouping selected data elements into "profile types," which are then stored. *Id.* at Col. 30:43-58. Profile types are related data elements that together provide information about a particular aspect of the driver's operation of the vehicle. *Id.* For example, the "headway profile" includes speed, acceleration rate, and proximity to other vehicles. *Id.* The "steering profile" includes the frequency and amplitude of steering changes, lane position, and motion relative to other vehicles. *Id.* at Col. 30:46-58. The profiles are analyzed to determine the driver's performance level. *Id.* at Col. 31:24-35. The profiles are then stored when the recent history of the driver is updated. *Id.* at Col. 31:36-38. Bouchard also

discloses analyzing, grouping, and storing data elements by analyzing monitored data elements (such as distance and speed), combining them into a processed data element (such as average speed), and storing the resulting information. *Id.* at Col. 26:50-59.

247. Element [6.4] of claim 6 recites "*correlating the group data values to preset values in a second memory and generating an output data value based on the correlation wherein the output data value is used to compute an insurance rating for the vehicle FOR the data collection period.*" As discussed above, Bouchard refers to group data values as profile types. Profile types are correlated and compared with "normal driving standards" to evaluate the safety of the driver's current monitored behavior. *Id.* at Col. 5:23-24. One of ordinary skill would have understood Bouchard's disclosure to teach that the normal driving standards are stored in a second memory or region of memory separate from group data values stored in the first memory or region of memory so they can be compared with one another. One of ordinary skill would also have recognized that Bouchard's teaching of comparing profile types to "normal driving standards" explicitly teaches, or at a minimum inherently discloses, generating an output value based on the correlation because the result of the comparison is later used to evaluate the driver's performance. Pettersen discloses that this type of system would be "of interest for . . . car insurance companies" and that insurance companies could use this to compute an insurance rating by giving "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. *Id.* By determining "a more fair bonus arrangement," Pettersen discloses (expressly or at minimum inherently) computing an insurance rating for the vehicle, so that the bonus will be fair. Pettersen would have therefore motivated someone of skill in the art to use Bouchard's method of analyzing data elements to compute a more accurate and "fair" insurance rating. Finally, by disclosing "a more fair bonus arrangement," Pettersen teaches

rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.

248. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 6. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
6. A method of monitoring a human controlled power source driven vehicle, the method comprising:	**To the extent this preamble is considered a limitation to the claim, Bouchard discloses monitoring a vehicle at 5:21-25:** "Each of the conditions monitored are used to make a determination as to whether the driver is performing in conformity with normal driving standards and the driver's past performance."
extracting one or more data elements from at least one sensor	**Bouchard discloses actively requesting information from subsystems at 29:33-38:** "The microcontroller 22 would be coupled to the system serial bus, and could either monitor activity on the bus and store relevant information it encounters, or take an active role on the bus by ***requesting relevant information from other subsystems*** and then storing such information." **Bouchard discloses sensors that are polled for information at 11:8-12:** "[T]he sensors are coupled to the system processor **107** which controls both the obstacle detection and collision avoidance system, and the operational event recording system. In the preferred embodiment of the present invention, ***the sensors are sampled or "polled"*** in known fashion."
wherein the one or more elements are of at least one operating state of the vehicle and the at least one human's actions during a data collection period;	**Bouchard discloses monitoring data elements to determine the operational conditions under which the driver and vehicle are operating at 10:51-53:** "The important aspect of the present invention is the ability to determine the ***operational conditions under which the driver and vehicle are operating***." **Bouchard discloses monitoring a plurality of data elements representative of the operational status of the vehicle at 9:26-33; see also 9:34-47; 10:18-51; 24:1-8; Fig. 12:** "The display and sensor section 600 which provides

Claim Element	Bouchard in View of Pettersen
	information from a variety of vehicle sensors 4a to the microcontroller 510 for use in calculating the hazard level . . . and/or ***to indicate the operational status*** and environment ***of the vehicle***. Commonly known sensors may be used, for example, to measure distance travelled, vehicle speed (momentary and average), fuel consumption, fuel remaining, direction of travel, engine temperature, oil pressure, engine RPM, oil temperature, transmission fluid temperature, coolant temperature, engine timing and other values relating to the environment or performance of the vehicle." **Bouchard discloses monitoring and analyzing driver performance during a data collection period at 9:63-65:** "The driver's performance over a recent period of time is compared to a standard derived from the personal profile calculated using the driver's past performance."
analyzing, grouping, and storing the one or more data elements as group data values in a first memory related to a predetermined group of elements; and,	**Bouchard discloses analyzing data elements and storing them as types of profiles at 30:35-51:** "***The headway profile includes***: (1) the rate at which the vehicle approaches obstacles, including other vehicles (i.e., closure); (2) the vehicle speed; (3) how smoothly the vehicle accelerates, decelerates, and closes on obstacles (i.e., jerk); (4) the distance between the vehicle equipped with the present invention and other vehicles, determined in terms of mean value and variability; (5) "phase margin" (ie., a measure of the vehicle operator's reserve capacity to respond safely to particular conditions that might arise); and (6) headlights 45 and windshield wipers are monitored since they are indications of poor visibility and road conditions. ***The steering profile*** is generated by monitoring the median frequency shifts, in other words, the variations in lane position. The frequency and amplitude of steering changes, correlated to the vehicle speed, provide a simplistic means for determining lane position." **Bouchard discloses processing groups of data and storing data elements onto a RAM card at 26:50-59:** "***[S]elected data would be gathered from the vehicle sensors*** 4a and/or the digital electronics section 500 by the microcontroller 22, typically after the vehicle is started. The data is stored into the RAM card 20 by the microcontroller 22 at 55 periodic intervals, which may be determined by time and/or by distance traveled. ***The micro controller 22 may also do some computation on the data, such as determining a miles-per-gallon value or average speed, to derive processed data for storage in the RAM card 20***."
correlating the group data values to preset values in a second memory and	**Bouchard discloses correlating the current profile types with normal driving standards at 5:23-24:** "Each of the conditions monitored are use to make a determination as to whether the driver is performing in conformity with normal driving standards and the driver's past performance."

Claim Element	Bouchard in View of Pettersen
	Bouchard discloses correlating the current profile types with the driver's history at 31:24-35: "***The results of the steps 1803, 1804 and 1805 are compared to a recent history for the driver*** using statistical criteria (STEP 1806). For example, in one embodiment of the present invention, a performance distribution curve is generated which indicates the level of a driver's performance at anyone time with relation to his performance at each other time recorded. The driver's recent driving history is used to generate short term profiles and to evaluate current secondary task performance. Driver patterns that show a driver's recent performance to be at the less desirable ends of that particular driver's performance distribution curve indicate a need for caution." *One of ordinary skill would have understood Bouchard's disclosure to teach that normal driving standards are stored in a second memory or region of memory separate from group data values stored in the first memory or region of memory so they can be compared with one another.*
generating an output data value based on the correlation	**Bouchard discloses comparing the current profile types with normal driving standards and using the result to evaluate the driver's performance at 5:23-24:** "The present invention operates by monitoring conditions external to a driver of a motor vehicle. Each of the conditions monitored are used to make a ***determination as to whether the driver is performing in conformity with normal driving standards*** and the driver's past performance." *One of ordinary skill would have recognized that Bouchard's teaching of comparing profile types to "normal driving standards" explicitly teaches, or at a minimum inherently discloses, generating an output value based on the correlation because the result of the comparison is later used to evaluate the driver's performance.*
wherein the output data value is used to compute an insurance rating for the vehicle	**Pettersen discloses a method similar to that of Bouchard and discloses determining a more fair bonus arrangement at 1:** "The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus." *By determining "a more fair bonus arrangement," Pettersen discloses (expressly or at minimum inherently) computing an insurance rating for the vehicle, so that the bonus will be at an appropriate (fair) level.*
FOR the data collection period	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses giving drivers who drive carefully for the data collection period bonuses against their insurance costs in the monitored period at 1:**

Claim Element	Bouchard in View of Pettersen
	"The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a ***"careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus***. By that very fact that the policy holders know that their driving pattern is being controlled and recorded, many will be stimulated to change their driving pattern; this will again reduce driving speed, number of accidents, and consequently also the size of the disbursements from the insurance companies." *By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.*

(g) Dependent Claim 7

249. An overview of the reasons for rejection of claim 7 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

250. Dependent claim 7 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis:

> [7.1] "*The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,*
>
> [7.2] *storing and transmitting a signal corresponding to the determined triggering event to a receiving system.*"

251. Element [7.1] of claim 7 recites that "[t]*he method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events where if the determination is positive, correlating the one or*

more data elements to one or more types of triggering events stored in a third memory." As discussed above, one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 6.

252. As disclosed above, (*see* section [6.3]) Bouchard teaches analyzing data types to determine whether the driver is driving safely. Ex. G at Col. 27:38-52. Bouchard also teaches triggering events when data elements indicate certain conditions of unsafe driving. *Id.* at Col. 27:40-41. Bouchard gives the example of an accident condition, triggered by "a sudden application of the brakes [or] activation of an air bag." *Id* at Col. 27:44-48. When the event is triggered, Bouchard discloses emitting warning signals that increase in intensity depending on the correlation between the amount of danger indicated by the data elements and the triggering event. *Id* at Col. 24:32-37. One of ordinary skill would have understood Bouchard's disclosure to teach that the preset threshold values representing such different types (levels) of trigger events are stored in a third memory or region of memory separate from group data values stored in the first memory or region of memory (*see* element [6.3]) and the normal driving standards stored in the second memory or region of memory (*see* element [6.4]) so that they can be compared with each other.

253. Element [7.2] of claim 7 recites "*storing and transmitting a signal corresponding to the determined triggering event to a receiving system*." Bouchard teaches recording information about the vehicle or the driver's behavior to a separate area of memory when a trigger event is detected. *Id.* at Col. 27:44-52. This "permits capturing data for later analysis of vehicle and/or driver performance." *Id.* at Col. 27:50-52. Bouchard also teaches communicating information about the trigger event to the driver or a dispatcher, including

"broadcast[ing] a message to a dispatcher or controller at a remote site who is responsible for ensuring the safety of driver and vehicle" in certain conditions. *Id.* at Col. 31:55-59.

254. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 7. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
7. The method according to claim 6, further including the steps of:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 6.**
determining if the one or more data elements indicate one or more predetermined triggering events,	**Bouchard discloses preset threshold values that indicate trigger events at 27:39-52:** "[R]ecording to a page other than the current page may be triggered by an unusual event, such as a vehicle operational or performance value exceeding ***a preset threshold value***, or an accident. For instance, it may be desirable to record drive train sensor values only if one or more values, such as engine temperature, exceed a threshold value. As another example, such recording may be ***triggered by an unusual condition that may indicate an accident, such as a sudden acceleration or deceleration, sudden application of the brakes, activation of an air bag, etc***. Recording can also be triggered manually. Recording such information on a separate page in memory, and only upon being triggered by a particular event, permits capturing data for later analysis of vehicle and/or driver performance." **Bouchard discloses deciding whether to emit a warning based on determining whether data elements indicate a trigger event at 24:17-21:** "***If a danger is present, the microcontroller 510 activates an appropriate visual and/or audio warning***. The level of the danger is preferably determined based upon brake lag, brake rate, vehicle speed, closing rate, target distance, and the reaction time of the operator."
where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory;	**Bouchard discloses correlating the data elements to hazard levels at 24:33-37:** "[T]he color of the lights change from green to yellow to red, respectively, as the level of the danger increases. The audio warning unit 606 includes a sound generator that emits an audible beep or warble if the ***hazard level*** exceeds a threshold level." *One of ordinary skill would have understood Bouchard's disclosure to teach that the preset threshold values representing such different types (levels) of trigger events are stored in a third memory or region of memory separate from*

Claim Element	Bouchard in View of Pettersen
	group data values stored in the first memory or region of memory and the normal driving standards stored in the second memory or region of memory so that they can be compared with each other.
and, storing and transmitting a signal corresponding to the determined triggering event to a receiving system.	**Bouchard discloses storing information based upon specific triggers at 27:44-52:** "As another example, ***such recording may be triggered*** by an unusual condition that may indicate an accident, such as a sudden acceleration or deceleration, sudden application of the brakes, activation of an air bag, etc. Recording can also be triggered manually. Recording such information on a separate page in memory, and only upon being triggered by a particular event, permits capturing data for later analysis of vehicle and/or driver performance." **Bouchard discloses alerting a dispatcher or recording the event at 31:41-46:** "In the step **1806,** as previously noted, the data from the steps **1803, 1804,** and **1805** is compared to the recent driver history using statistical criteria. ***The possible consequences, as determined in the step 1808 include alerting the driver, a dispatcher,*** shutting down or limiting the operation of the vehicle, ***and event recording***." **Bouchard discloses broadcasting a message to a dispatcher about the triggered event at 31:41-46:** "In the illustrated embodiment of the present invention, if the driver is not performing at the required level at the end of the predetermined period, the microcontroller broadcasts a message to a dispatcher or controller at a remote site who is responsible for ensuring the safety of the driver and vehicle."

(h) Dependent Claim 8

255. An overview of the reasons for rejection of claim 8 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

256. Claim 8 is reproduced below, with labels added in brackets for the purpose of referencing the claim elements in the following analysis. For the sake of comparison, dependent claim 7 is also provided below. It is readily seen that various elements are essentially identical to corresponding elements in method claim 7.

	Claim 7		Claim 8

[7.1]	The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,	[8.1]	The method according to claim 6, further including the steps of: determining if the one or more data elements indicate one or more predetermined triggering events, where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory; and,
[7.2]	storing ***and*** transmitting a signal corresponding to the determined triggering event to a receiving system.	[8.2]	storing ***or*** transmitting a signal corresponding to the determined triggering event to a receiving system.

257. Accordingly, the analysis for elements [8.1] and [8.2] is essentially the same as that provided above for elements [7.1] and [7.2], respectively. Element [8.2] recites "storing or transmitting" information while element [7.2] recites "storing and transmitting." Accordingly, the analysis for narrower element [7.2] is the same for element [8.2].

258. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 8. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
8. The method according to claim 6, further including the steps of:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 6.**
determining if the one or more data elements indicate one or more predetermined triggering events,	**Bouchard discloses preset threshold values that indicate trigger events at 27:39-52:** "[R]ecording to a page other than the current page may be triggered by an unusual event, such as a vehicle operational or performance value exceeding ***a preset threshold value***, or an accident. For instance, it may be desirable to record drive train sensor values only if one or more values, such as engine temperature, exceed a threshold value. As another example, such recording may be ***triggered by an unusual condition that may indicate an accident, such as a sudden acceleration or deceleration, sudden application of the brakes, activation of an air bag, etc.*** Recording can also be triggered manually. Recording such information on a separate page in memory, and only upon being triggered by a particular event, permits capturing data for later analysis of vehicle and/or driver performance."

Claim Element	Bouchard in View of Pettersen
	Bouchard discloses deciding whether to emit a warning based on determining whether data elements indicate a trigger event at 24:17-21: "***If a danger is present, the microcontroller 510 activates an appropriate visual and/or audio warning***. The level of the danger is preferably determined based upon brake lag, brake rate, vehicle speed, closing rate, target distance, and the reaction time of the operator."
where if the determination is positive, correlating the one or more data elements to one or more types of triggering events stored in a third memory;	**Bouchard discloses correlating the data elements to hazard levels at 24:33-37:** "[T]he color of the lights change from green to yellow to red, respectively, as the level of the danger increases. The audio warning unit 606 includes a sound generator that emits an audible beep or warble if the ***hazard level*** exceeds a threshold level." *One of ordinary skill would have understood Bouchard's disclosure to teach that the preset threshold values representing such different types (levels) of trigger events are implemented in a distinct third memory or region of memory to remain separate from group data values in a first memory or region of memory and the normal driving standards implemented in second memory or region of memory so that they can be compared with each other.*
and, storing or transmitting a signal corresponding to the determined triggering event to a receiving system.	**Bouchard discloses storing information based upon specific triggers at 27:44-52:** "As another example, ***such recording may be triggered*** by an unusual condition that may indicate an accident, such as a sudden acceleration or deceleration, sudden application of the brakes, activation of an air bag, etc. Recording can also be triggered manually. Recording such information on a separate page in memory, and only upon being triggered by a particular event, permits capturing data for later analysis of vehicle and/or driver performance." **Bouchard discloses alerting a dispatcher or recording the event at 31:41-46:** "In the step **1806,** as previously noted, the data from the steps **1803, 1804,** and **1805** is compared to the recent driver history using statistical criteria. ***The possible consequences, as determined in the step 1808 include alerting the driver, a dispatcher***, shutting down or limiting the operation of the vehicle, ***and event recording***." **Bouchard discloses broadcasting a message to a dispatcher about the triggered event at 31:41-46:** "In the illustrated embodiment of the present invention, if the driver is not performing at the required level at the end of the predetermined period, the microcontroller broadcasts a message to a dispatcher or controller at a remote site who is responsible for ensuring the safety of the driver and vehicle."

(i) Dependent Claim 10

259. An overview of the reasons for rejection of claim 10 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

260. Dependent claim 10 recites that "*The method according to claim 6, further comprising the steps of: using safety or other actuarial standard values as the preset values; and, generating an adjusted insurance cost as the output data value.*" As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 6.

261. Bouchard teaches that unusual conditions that could affect the driver's safety. Ex. G at Col. 27:44-52. Bouchard gives the example of an accident condition, triggered by "a sudden application of the brakes [or] activation of an air bag." *Id.* Bouchard also discloses safety standards such as "normal driving standards" and "the driver's past performance." *Id.* at Col. 5:20-25. Finally, Bouchard discloses preset hazard levels that trigger alerts for the drivers. *Id.* at Col. 24:33-37. Data elements can trigger increasing hazard levels depending on the level of danger as calculated by the Bouchard system. *Id.* Pettersen teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. Ex. H at 1. Pettersen therefore would have motivated someone of skill in the art to use Bouchard's preset safety values and measured values in outputting an insurance cost based on a standard (pre-bonus) insurance charge and any applicable bonuses.

262. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 10. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
10. The method according to claim 6, further comprising the steps of:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 6.**
using safety or other actuarial standard values as the preset values;	**Bouchard discloses determining a relationship with normal driving standards at 5:20-25:** "The present invention operates by monitoring conditions external to a driver of a motor vehicle. Each of the conditions monitored are used to make a ***determination as to whether the driver is performing in conformity with normal driving standards*** and the driver's past performance." **Bouchard discloses using hazard levels as preset values at 24:33-37:** "[T]he color of the lights change from green to yellow to red, respectively, as the level of the danger increases. The audio warning unit 606 includes a sound generator that emits an audible beep or warble if the ***hazard level*** exceeds a threshold level."
and, generating an adjusted insurance cost as the output data value.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses outputting a bonus value to adjust the insurance cost, at 1:** "Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern – low speeds and low accelerations - may be allotted a higher bonus." *By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.*

(j) Dependent Claim 11

263. An overview of the reasons for rejection of claim 11 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

264. Dependent claim 11 recites that "*The method according to claim 10, further comprising the steps of: using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted insurance*

cost." As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 10.

265. Among the data elements that Bouchard monitors are time of day, Ex. G at Col. 30:19-22, geographic position, *id.* at Col. 9:39-47, and speed, *id.* at Col. 30:29-35. Figure 18, *supra*, illustrates the steps Bouchard teaches in analyzing vehicle and driver behavior. In the figure, location of vehicle operation is reflected in "driving environment" in step 1801, time is represented in "time of day" in step 1802, and "speed" is incorporated in step 1803. The data from these steps is combined and stored in a log, or "driver history," in step 1807. *Id.* at Col. 31:36-38. The data from these steps is combined and analyzed to determine whether the driver is driving safely. *Id.* at Col. 31:24-35. Pettersen teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. Ex. H at 1. Pettersen therefore would have motivated someone of skill in the art to use Bouchard's preset safety values and measured values in outputting an insurance cost based on a standard (pre-bonus) insurance charge and any applicable bonuses.

266. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 11. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
11. The method according to claim 10, further comprising the steps of:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 10.**

using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted insurance cost.	**Bouchard discloses monitoring location at 9:39-47; 11:1-2:** "Additional information can be obtained by providing other sensors, such as . . . ***geographic positioning information*** . . . ." **Bouchard discloses monitoring time at 30:19-22:** "In addition to classifying the environment, certain time factors are classified (STEP 1802). The time factors include ***time of day*** (morning nadir, afternoon nadir, or other) . . . ."

(k) Dependent Claim 12

267. An overview of the reasons for rejection of claim 12 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

268. Dependent claim 12 recites that "*The method according to claim 11 wherein: the adjusted insurance cost can be for a prospective or retrospective basis.*" As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 11.

269. Pettersen teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. Ex. H at 1. By rewarding drivers with a bonus, Pettersen discloses a retrospective insurance cost for driving behavior during the monitored time period. Pettersen therefore would have motivated someone of skill in the art to use Bouchard's preset safety values and measured values in outputting an retrospective insurance cost based on a standard (pre-bonus) insurance charge and any applicable bonuses.

270. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together

disclose each element of claim 12. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
12. The method according to claim 11 wherein:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 11.**
the adjusted insurance cost can be for a prospective or retrospective basis.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses generating an adjusted insurance cost based on monitored data elements at 1:** "Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern – low speeds and low accelerations - may be allotted a higher bonus." *By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period, resulting in an adjusted insurance cost. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.*

(l) Dependent Claim 13

271. An overview of the reasons for rejection of claim 13 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

272. Dependent claim 13 recites that "*The method according to claim 6, further comprising the steps of: using safety or other actuarial standard values as the preset values; and, generating an adjusted underwriting cost as the output data value.*" As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 6.

273. Bouchard teaches that unusual conditions could affect the driver's safety. Ex. G at Col. 27:44-52. Bouchard gives the example of an accident condition, triggered by "a sudden application of the brakes [or] activation of an air bag." *Id.* Bouchard also discloses safety standards such as "normal driving standards" and "the driver's past performance." *Id.* at Col. 5:20-25. Finally, Bouchard discloses preselected hazard levels that trigger alerts for the drivers. *Id.* at Col. 24:33-37. Data elements can trigger increasing hazard levels depending on the level of danger. *Id.* Pettersen teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. Ex. H at 1. Pettersen therefore would have motivated someone of skill in the art to use Bouchard's preset safety values and measure values in outputting an insurance cost based on a standard (pre-bonus) insurance charge and any applicable bonuses. Furthermore, a person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

274. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 13. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Prior Art
13. The method according to claim 6, further comprising the steps of:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 6.**
using safety or other actuarial standard values as the preset values;	**Bouchard discloses determining a relationship with normal driving standards at 5:20-25:** "The present invention operates by monitoring conditions external to a driver of a motor vehicle. Each of the conditions monitored are used to make ***a determination as to whether the driver is performing in conformity with normal driving standards*** and the driver's past performance." **Bouchard discloses using hazard levels as preset values at 24:33-37:** "[T]he color of the lights change from green to yellow to red,

Claim Element	Prior Art
	respectively, as the level of the danger increases. The audio warning unit 606 includes a sound generator that emits an audible beep or warble if the ***hazard level*** exceeds a threshold level."
and, generating an adjusted underwriting cost as the output data value.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses outputting a bonus value, which serves as an insurance cost, at 1:** "Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. ***On the basis of these readings, the company may e.g. set a more fair bonus arrangement***, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus. By that very fact that the policy holders know that their driving pattern is being controlled and recorded, many will be stimulated to change their driving pattern; this will again reduce driving speed, number of accidents, and consequently also the size of the disbursements from the insurance companies." *By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period, resulting in an adjusted insurance cost. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time.* *A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.*

(m) Dependent Claim 14

275. An overview of the reasons for rejection of claim 14 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

276. Dependent claim 14 recites that "*The method according to claim 13, further comprising the steps of: using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted underwriting cost.*" As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art

at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 13.

277. Among the data elements that Bouchard monitors are time of day, Ex. G at Col. 30:19-22, geographic position, *id.* at Col. 9:39-47, and speed, *id.* at Col. 30:29-35. Figure 18, *supra*, illustrates the steps Bouchard teaches for analyzing vehicle and driver behavior. In the figure, location of vehicle operation is reflected in "driving environment" in step 1801, time is represented in "time of day" in step 1802, and "speed" is incorporated in step 1803. The data from these steps is combined and analyzed to determine whether the driver is driving safely. *Id.* at 31:24-35.

278. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 14. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
14. The method according to claim 13, further comprising the steps of:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 13.**
using location and time as the one or more data elements which are compared to the safety or other actuarial standard values to generate the adjusted underwriting cost.	**Bouchard discloses monitoring location at 9:39-47 and 11:1-2.** Additional information can be obtained by providing other sensors, such as . . . geographic positioning information. **Bouchard discloses monitoring time at 30:19-22.** In addition to classifying the environment, certain time factors are classified (STEP 1802). The time factors include time of day (morning nadir, afternoon nadir, or other) . . . .

(n) Dependent Claim 15

279. An overview of the reasons for rejection of claim 15 in light of Bouchard in view of Pettersen is set forth below. A more detailed explanation is provided in the claim chart included at the end of this section.

280. Dependent claim 15 recites that "*The method according to claim 14 wherein: the adjusted underwriting cost can be for a prospective or retrospective basis.*" As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose the method according to claim 14.

281. Pettersen teaches that insurance companies could give "careful" drivers, based on monitored behavior, bonuses against their insurance costs for the monitored period. Ex. H at 1. By rewarding drivers with a bonus, Pettersen discloses a retrospective insurance cost for driving behavior during the monitored time period. As explained above, a person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.

282. As discussed above, *supra* at Section III.C(3), one of ordinary skill in the art at the time would have been motivated to combine Bouchard and Pettersen, which together disclose each element of claim 15. The following claim chart demonstrates, in further detail, how each element is disclosed by this combination.

Claim Element	Bouchard in View of Pettersen
15. The method according to claim 14 wherein:	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 14.**
the adjusted underwriting cost can be for a prospective or retrospective basis.	**Pettersen discloses a system similar to that of Bouchard for monitoring vehicle sensors and discloses outputting a bonus value, which serves as an insurance cost, at 1.** Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a more fair bonus arrangement, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus. By that very fact that the policy holders know that their driving pattern is being controlled and recorded, many will be stimulated to change their driving pattern; this will again reduce driving speed, number of accidents, and consequently also the size of the disbursements from the insurance companies.

Claim Element	Bouchard in View of Pettersen
	By disclosing "a more fair bonus arrangement" Pettersen teaches rewarding a driver for monitored behavior with a bonus or rebate against insurance charges for that monitored period, resulting in an adjusted insurance cost. This is confirmed by the common understanding of "bonus" as including at least a possible reward based on past performance, as one of ordinary skill would have recognized at the time. *A person of ordinary skill in the art would have understood that determining an insurance cost would entail determining an underwriting cost.*

5. Claim 9 of the '970 patent is rendered obvious by Bouchard in view of Pettersen and the Admitted Prior Art.

283. Dependent claim 9 recites that "[t]*he method as defined in claim 6 wherein the output data value is additionally used for computing an insurance rating for the vehicle for a future data collection period.*" As described above in Section III.C(4)(f), the combination of Bouchard and Pettersen teaches all of the elements of claim 6. The Admitted Prior Art further confirms that it was well known to those of ordinary skill to utilize vehicle and operator data to assess insurance rates prospectively. *Id.* at 5-6. Similarly, Bouchard and Pettersen disclose utilizing vehicle and operator data to assess insurance rates for the monitored time period. Thus, someone of skill in the art would have been motivated to combine Bouchard, Pettersen and the Admitted Prior Art based on the similar ways in which they monitor, analyze, and use data elements for insurance purposes, and to assess insurance rates both for the measured period and prospectively, thereby making additional use of this data for the common purposes they disclose. A combination of Bouchard, Pettersen, and the Admitted Prior Art renders claim 9 obvious.

284. The following claim chart demonstrates, in further detail, how each element is disclosed by Bouchard, Pettersen, and the Admitted Prior Art.

Claim Element	Bouchard in View of Pettersen and the Admitted Prior Art
9. The method as defined in claim 6	**As discussed in the claim chart above, the combination of Bouchard and Pettersen discloses the method according to claim 6.**

wherein the output data value is additionally used for computing an insurance rating for the vehicle for a future data collection period.	**The Admitted Prior Art discloses a system similar to that of Bouchard and Pettersen and discloses using data to compute an insurance rate for a future collection period:** During prosecution of the '970 patent, the Applicants characterized the systems described in U.S. Patent Nos. 5,499,182 and 5,430,432 ("Ousbourne" and "Camhi," respectively) as comprising "a more sophisticated scheme of collecting historical information in a conventional insurance scheme by generating a prospective rate based upon then known operating results and parameters of the vehicle operator." Ex. B, Amend. D at 5. Thus, Applicants admitted that the prior art disclosed using vehicle and operator data to compute an insurance rate for a future time period.

IV. CONCLUSION

For at least the reasons set forth above, very substantial new questions of patentability are raised concerning Claims 1-15 of the '970 patent. Indeed, in view of the previously-uncited Kosaka, Black Magic, Lemelson, Dorweiler, and Bouchard references, and the Pettersen reference that was not previously considered in the light presented here, as well as the Admitted Prior Art, all of Claims 1-15 are rendered either anticipated or obvious. It is therefore respectfully submitted that this Request for reexamination of the '970 patent should be granted and Claims 1-15 be found invalid. If there are any questions, counsel for Requester may be contacted at the below listed telephone number, or through counsel's direct telephone number, (202) 508-4606.

As identified in the attached Certificate of Service and in accordance with 37 C.F.R. §§ 1.33(c) and 1.510(b)(5), a copy of the present request, in its entirety, is being served to the address of the attorney or agent of record reflected in the publicly-available records of the United States Patent and Trademark Office as designated in the Office's Patent Application Information Retrieval system.

Please direct all correspondence in this matter to the undersigned.

Respectfully submitted,

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Dated: September 22, 2010